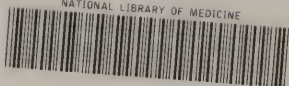


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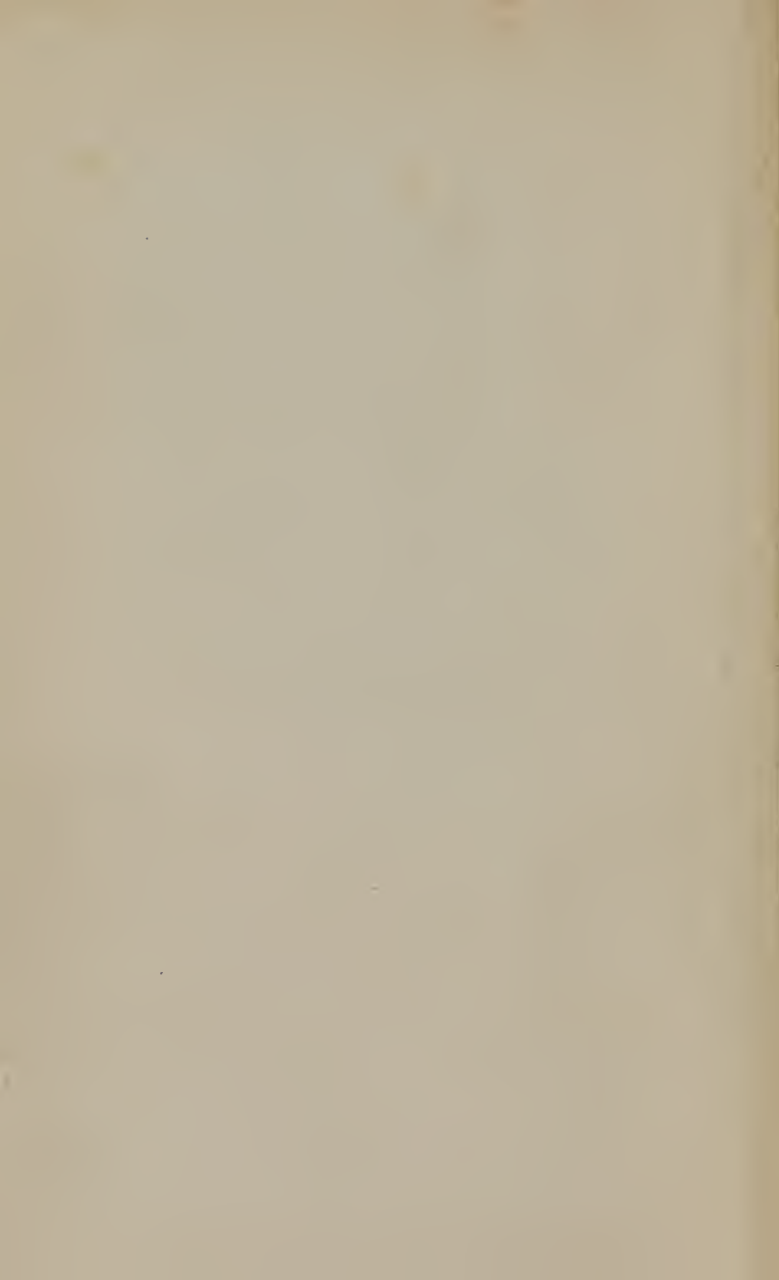
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GYNECOLOGY;

OR

TREATISE ON MIDWIFERY

AND

PHYSICAL AILMENTS OF WOMEN AND CHILDREN;

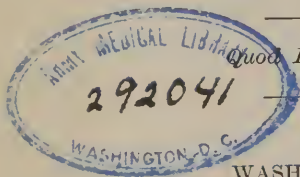
CONTAINING

AN EXPLANATION OF THE PHENOMENA OF REPRODUCTION;
WITH REMARKS ON STERILITY; HOW TO CARE FOR AND
RAISE INFANTS; PLURAL BIRTHS; CHLOROFORM, &c.,
IN CONFINEMENT; HYGIENE, &c., &c.

BY

JOSEPH THEOPHILUS HOWARD, M. D.,

MEMBER OF THE MEDICAL SOCIETY AND ASSOCIATION OF WASHINGTON, D. C.



Quod Deus bene vertat.

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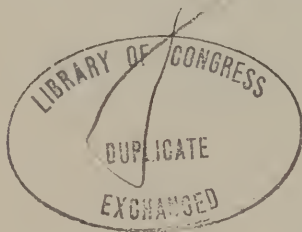
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TO MY PATIENTS,

FROM WHOM,

AMIDST PHYSICAL SUFFERINGS AND SORROWS,

HAVE BEEN RECEIVED

SO MANY MANIFESTATIONS OF GRATITUDE, CONFIDENCE,
AND ESTEEM,

THIS WORK IS RESPECTFULLY INSCRIBED,

AS

AN HUMBLE TESTIMONIAL OF AFFECTIONATE REMEMBRANCE
AND GRATEFUL ACKNOWLEDGMENT,

By the Author.

P R E F A C E .

From the fountain of every science and art, beginning with heaven-eyed astronomy, adown through all the mystical mazes of others, to the last, though not least, earth-penetrating geology, except that of medicine, there flows a stream refulgent with light and knowledge, contributed by the disinterested workers therein, of which every one who will can come and partake freely. Why should the exception exist? Is there so little interest felt in relation to their physical ailments on the part of individuals generally, that they do not pause to make inquiry, to some extent, at least, in reference thereto? Or is it right or proper that they should continue to be the dupes of every imposter and mountebank, who are always ready to take advantage of their ignorance, credulity, and superstition, in relation to medicine, regarding which some even of the learned and wise in other branches of knowledge are ever so much so, without endeavoring to release them from the yoke of bondage? It is thought not. Neither is it owing to a want of exertion on their part in that direction; for it is well known that every book purporting or pretending to give any information relative to domestic medicine is preserved and perused with avidity. Therefore the real facts of the case are, that there is now no work extant adapted to the present advanced state of medical knowledge, save some exclusively professional, giving or devising a proper plan whereby they may become intelligibly informed in this, as in the other sciences and arts. Hence the present work has been undertaken as initial to others that may follow; because we

believe the general diffusion of such information can be productive only of good to the profession and community at large. The latter it will impress with the necessity of having experience joined with knowledge to make it efficient; besides, it will enable them to detect the barefaced assurance of charlatanism, cause them to have less frequent recourse to worthless nostrums, and ultimately lead them to more highly appreciate, honor, and esteem the science of medicine proper. To fulfill the indications before mentioned as lacking in other publications, and to make this at once scientific and comprehensive, technical terms, where possible, have been avoided; but as they could not at all times be ignored, without requiring long-drawn sentences or frequent tautology, a glossary has been appended, wherein will be found definitions of those occasionally used. There has been no effort to make the work voluminous, either by verbosity or the insertion of unnecessary matter. On the contrary, clearness of explanation, perspicuity and chasteness of style, and accuracy of arrangement, have been the chief and constant aim; thus making it as well a book of reference to the practitioner, as instructive to the student, and interesting to the general reader. How far success has been attained in these respects is for each to judge. Then in this, as

“In every work, regard the writer’s end,
Since none can compass more than they intend;
And if the means be just, the conduct true,
Applause, in spite of trivial faults, is due.”

THE AUTHOR.

1126 NINTH STREET,

WASHINGTON CITY, D. C., *June 1, 1871.*

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INTRODUCTION.

The realities of that awful fiat pronounced by the Almighty after the fall, when "unto the woman He said, I will greatly multiply thy sorrow and thy conception; in sorrow thou shalt bring forth children," are too sadly experienced even unto this day by the daughters of Eve to be for one moment questioned or ignored. And as in all the distant past, so it would have been now and in the still more distant future, down to the very end of time, had not the Omnipotence that decreed been as powerful to mitigate the sentence He pronounced. "For He knoweth our frame:" therefore doth He temper the wind to the shorn lamb: therefore from the beginning all His judgments are tempered with merey. How manifest is this property in all the means and appliances God has given to man to assuage the pains of suffering woman in the sorrows of child-bearing, judge ye all who read these pages. For, conceived in the sorrow, born in the pains, and nurtured into life by the necessities incident to and dependent upon the conception, parturition, and management of the first child of our common parents, the science and art of midwifery originated and began its development. Though long languishing and slow of growth for many ages, it has at length attained unto the perfectly ample proportions in which we now behold it, and from which we propose, after a brief

9

review of its rise and progress, to cull the most important subjects, suitable to the objects and aim of this volume, and lay them before the reader.

The term midwifery in the present day comprehends that branch of medical science which aids in preparing, assisting, and preserving the female for and during parturition, and provides for the proper maintenance of both mother and child after delivery, and the treatment of all diseases and complications incident to, occurring before, during, or after labor. The word *midwife* is believed to be derived from the Anglo-Saxon *mede-wif*—a woman hired for *mede*, or reward, to assist in child-birth.

Among the medical profession generally this term has almost been discarded, or replaced by others considered more classic and dignified, if not more expressive and relative. Thus we have from the Latin *obstetrics*, signifying almost literally the same as the former term. From the Greek *tokology*, *tokos*—child-birth, and *logos*—a discourse; also, *gynecology*, from *gyne*, *gynaiikos*—a woman, and *logos*—a discourse; and from the French *accoucheur*—used to indicate a male practitioner. This term was first applied to the art in France during the reign of Louis XIV, when it was conferred as a title of honor upon Julian Clement, by La Valliere, mistress to Louis: he having attended her in her first confinement. The profession generally, of that period, it seems, were so pleased with the title, that they adopted it to designate the practice of the art altogether among them then, which prevails even unto this day. Sequestered or confined to those alone who were immediately interested in the matter for years upon years must have been all

efforts to aid, comfort, and relieve parturient women, since there is no mention of them among the earlier writers, that we know of, except it may be in a passive manner.

From the following, and one or two other passages in Genesis and Exodus, it will be observed that the office of midwife was understood among the Hebrew women, to some extent at least, in the early period to which they refer: "And it came to pass, as she (Rachel) was in hard labor, that the *midwife* said unto her, Fear not; thou shalt have this son also." At a still later period, among the Greeks and Romans, it is evident that the practice was entirely in the hands of females—most prominent among the former was Phænerete, the mother of the great teacher Soerates—and so continued until the time of Hippocrates, who it seems was the first male practitioner to give his attention to this branch of medical art, and from whom it received that impetus with which it has steadily, though slowly, advanced, "like the sweet sound, giving and taking odor," or gathering friends and strength from the support and comfort it gives, until it may now be numbered among those of Heaven's best gifts to our race.

Among the Romans, this art was now confined to a few simple aids or remedies, together with, in difficult cases, invocations to Ilithyia, sacrifices to Juno, Lucinda, and other then recognized deities; and so continued until the time of Celsus, called the Roman Hippocrates, who, it may be said, was the first to understand and describe what is termed professionally "the mechanism of labor."

The practice of Hippocrates himself was compar-

atively of a rude character, and not to be relished by females of the present time: as he recommended that in difficult cases the patient should be shaken whilst standing erect, and if this process failed to expedite the labor, she was to be placed in a bath, and made to undergo that ordeal. Treatment like this would be considered rather unpleasant, if not dangerous, under the circumstances, with the ladies at this enlightened period. He also urges that, if any other part than the head should present, it must be pushed back.

This practice, extending to and becoming known among the people generally, was conducted by females in most instances: the physicians being called upon only when the case did not seem to progress favorably; when it is to be supposed that, in most cases, the patient was compelled to undergo an extra course of shakings and douches.

The art made no further notable progress until about A. D. 100, when it was proposed by Moschion, the author of the first Manual of Midwifery, to open the mother after her death, and remove the child. Sometime after this, several centuries perhaps, during which period the Popes, whose authority was unlimited, assumed control, and, it is said, confined the professorships and practice of medicine to monks almost exclusively.

In their hands the art, extending to the peasants generally, consisted in the application of superstitious remedies principally; and when these failed of success, recourse was had to invoking the saints, relics, and images. About A. D. 1000, Avicenna, the renowned Arabian physician and philosopher, who

was mostly indebted for his knowledge of the Greeks to the Arabic translations of their writers, appeared upon the stage of action. He adopted and pursued, in this branch of the medical art, nearly the same course of practice as that of Hippocrates, without any marked improvements on his part.

In the fifteenth and sixteenth centuries, after the discovery of the "art preservative of arts," works of different merit upon obstetrics, by both Greek and Roman writers, began to multiply and become more general, though the practice of the same throughout all parts of Europe was almost solely in the hands of females; it being considered by some disgraceful for males to engage in it, and was looked upon by these as no less than an abominable attempt upon female virtue in any of the sterner sex who had the temerity to undertake it. So popular was this singular prejudice, we learn, that at Hamburgh, in 1521, one *Veities*, a physician, was condemned to be burned alive for assuming to practice this branch of his art. A few years later, 1543, in Italy, midwifery began to be somewhat revived and improved by the study of anatomy, which at this time had become more generally known, and in which Vesalius, of Padua, was so distinguished, on account of his opposition to Galen. Physicians and surgeons now began to give more attention and study to the theory and practice of midwifery; but the operations of the latter extended only to the cutting away of the child after the mother's death, as was required of them by laws at that time made and provided in such cases. And it was not until 1581 that ROUSSET, of Paris, who published a treatise upon the subject, in

which he proposed and named the Cæsarian operation, that it was performed upon the living subject. After this the section was frequently performed, and in many cases, as we are told, when it was unnecessary and altogether uncalled-for.

In other not remote places, during all this period of time, midwifery, as an art, still languished and remained in an unimproved state, especially among the larger portion of Germans, with whom it was confined to females principally, and the ignorant classes generally; though Eucharius Rhodion, in 1513, had published at Worms a work called "The Rose Garden of Midwifery," which afterward became very popular in England and other parts of Europe.

In France the art was steadily progressing and improving, by receiving the consideration and investigation of the scientific and learned. It was about this time that Ambrose Pare, the renowned French surgeon and father of modern surgery, first proposed and performed the operation of *turning* the child in certain cases, which operation has been handed down unimproved-upon even to this day. It was soon after this important period that Madame La Villiere, before referred to, contributed so much to the establishment of the practice of midwifery among males, by employing Clement in her first confinement. This precedent was soon followed by other ladies of high rank throughout France, and gradually extended to all, and through them to the lower classes or peasantry. The advantages derived from the change were so apparent, both in the conduct of labor and the management of the child, that it was not long

ere it spread over and became general throughout the whole of Europe.

In the meanwhile the physicians of England were not altogether indifferent to the practice and advancement of the art, as evinced about this time by the publication of a translation of Rhodion's work in London by Thomas Raynold, under the title of "*The Byrth of Mankynde; otherwise named the woman's book.*" And it was probably about this time that Dr. Paul Chamberlin had discovered and used the double-bladed forceps and vectis in difficult cases, though the fact was long kept a secret by him. And it was not until nearly a century afterwards that the exact nature of the instruments was known, when they were accidentally discovered and brought from their hiding-place by a tenant occupying the house where the Chamberlins had previously resided. These same instruments are said to be now in the possession of the London Medico-Chirurgical Society.

In 1672 a treatise was published by *Mauriceau*, in which he gives a very full and detailed account of the process of labor. This was for a long time the standard work upon the subject. In the same year it was translated into English by Hugh Chamberlin, and soon became widely known throughout all England. It was about this period that men began to engage in the practice generally: Harvey, the Chamberlins, and others of more or less renown, taking it upon themselves to study and practice the now popular growing art of midwifery.

It had been discovered, in 1668, by Camerarius, that some of the midwives in certain parts of Germany were in the habit of administering ergot for

the purpose of accelerating parturition; but it was not until more than a century afterwards that this medicine was brought into general use, and its action fully understood.

About the beginning of the eighteenth century many efforts were made to improve upon Chamberlin's instruments, by Gifford, Chapman, and others; but, it may be said, with little or no important success. The latter is supposed to be the first public teacher of the art of midwifery in London. He was followed in a few years afterwards by Sir Richard Manningham, who devoted all of his time and talents to the study and development of this branch of medicine. To him is attributed the establishment of the first hospital for the reception of lying-in women within the dominions of Great Britain.

Midwifery was now fully recognized as a *lower* branch of the medical profession; but towards the latter part of the last-named century it gradually became more exalted and dignified, by receiving such accessions as those well-known contributors to the art: Smellie, William Hunter, Denman, and Blair, in England; Astruc, Boudeloeque, and his famous pupils, Mesdames Boivin and Deschappelles, in France.

At the beginning of the present century the prejudice of medical practitioners generally to this branch of the healing art began to wane and die out. The by-laws of the London College of Physicians, which precluded its practitioners of midwifery from fellowship, were repealed, and they received into full communion; and it is believed that at this time, in all the medical schools of Europe and in this

country, there are professors or lecturers on obstetrics or midwifery. In England a knowledge of this branch of medical science is required of every candidate for the Degree of Doctor of Medicine. Nor is it required of them alone; but there the ignorant midwives of the past are done away with to a great extent, and women engaging as nurses in these cases are required by law to furnish a certificate, testifying that they have regularly attended lectures on midwifery, and that they have had personal charge of a certain number of labors under the direction of properly qualified teachers.

There are no special laws bearing upon the matter in this country, "our free America," which is greatly to be regretted. And any that may desire, without having received the least instruction, and who are entirely ignorant of the first principles of the art, can and do engage in the practice of it.

Another cause of greater regret is that, until very recently, there has been no general means whereby females, who may desire to properly qualify themselves as midwives, and nurses at least, if not to practice the art, could do so.

This great desideratum, it is hoped, by suitable legislation or otherwise, will soon in some manner be more amply supplied and all other defects be efficiently remedied. As one step towards the accomplishment of such an end, and to supply at the same time a hand-book of reference for practitioners, and one instructive to students of medicine, as has been already stated in our preface, we have here devoted our best energies; and, as a true disciple of the healing art, we will not recognize or

be confined to any pent-up systems, as expressed by such terms as alopathy, hydropathy, electropathy, homeopathy, eclecticism, or any other one-idea-ism. Every good physician, it is needless to say, must be eclectic, *i. e.*, to pick out or choose what he believes best for his patient, whether it is claimed as belonging to either of the systems above mentioned, the euphonious titles of which may serve well enough the purposes of the ignorant or wicked, as catering to that sickly sentimentality among a class who, judging from their attainments in other branches of learning, ought to be better versed in that of medicine. To contend that the potency of a remedy consists in its almost infinite divisibility or dilution is the very quintessence of absurdity. As well may we conclude that the inhabitants of those planets of our own system remotest from the sun experienced a greater degree of heat from that luminary than Mercury or Venus, who are millions of miles nearer him than ourselves; or that the great fall of waters from above, filtering through the earth's crust, or washing upon its surface from thousands of rills, rivulets, and streams, contained and carried back again all the concentrated active principles of the mineral, vegetable, and animal matters with which they necessarily must have come in contact in their return to the source from which they were eliminated in the form of vapor. No, not thus with the true physician; he, armed with knowledge, guided by reason, directed by wisdom, invokes them all to aid in efforts to relieve the distress, alleviate the pain, and restore to health those who repose such great confidence in him. At the same time, like Aaron of old, realizing the fact that he is stand-

ing between the living and the dead, he is too much absorbed in his duties to his fellows to carp about this or that system, or make any invidious distinctions of practice.

Such is to be the spirit of this work—to inculcate liberal principles and doctrines in the branch of medicine to which it is devoted. With such an object in view, it cannot but receive the sanction and God-speed of all disinterested medical practitioners and the wise and prudent of the laity. Then—

“With that same spirit that its author writ,
Survey the whole, nor seek slight faults to find
Where nature moves, and rapture warms the mind.”

For—

“Man, like the generous vine, supported lives;
The strength he gains is from the embrace he gives.
On their own axes, as the planets run,
Yet make at once the circle round the sun:
So two consistent motions act the soul,
And one regards itself, and one the whole.”

GYNECOLOGY.

ANATOMY.

In order to have a full and proper understanding of the subjects herein presented, some knowledge of anatomy and physiology is absolutely necessary, as is also some acquaintance with the doctrines of conception, impotence, and sterility. These, with all other subjects treated upon in this work, will be found under their proper heads.

That portion of anatomy which more properly belongs to this branch of medicine only will be described in this work, beginning with—

THE FEMALE PELVIS, or, as its name implies, a *basin*. By the French it is called *le bassin*, or the basin. In the adult it consists of four separable parts or bones—the two *os innominata*, or bones without a name; the *os sacrum*,* or sacred bone, so called from a belief among the Jewish rabbins that this part of the skeleton resisted decay, and became the germ from which the body would be raised into life again; and the *coccyx*, which derives its name from its resemblance to the cuckoo's beak. A general description of these separately and afterwards together will be required to fulfill the purpose in view. Each innominata, during the period of intra-uterine life, or before birth, consists of *cartilage*, or gristle only, in which deposition of bony substances subsequently

*According to some, from *sacer*, sacred, because it protects the genitals, which were deemed sacred; also from its being offered in sacrifice.

takes place, which become united soon after birth, forming three bones—the *ilium*, *ischium*, and *pubes*. The formation of bone continuing, these three meeting in the *acetabulum*, or cup-shaped cavity formed for the reception of the head of the thigh bone, in adult life become firmly joined together, forming the *os innominata*. As each of these bones performs an important part in the mechanism of labor, and will be frequently referred to hereafter, it is necessary to notice them separately, and describe some of their peculiarities.

The *ilium* is familiarly known to every one as the hip bone. It is the largest of the three. Its outer surface is called *dorsum*, or the back; it is irregularly convex, and marked with projections and depressions, from which arise the *glutæi* muscles. These muscles, three in number, pass down and are inserted into the thigh bone, forming the cushion or buttocks. The inner surface is concave and smooth. It is called the *venter*, or belly. Its surface has a ridge running horizontally across it, denominated the *linea ilia*, or line of the ilium, which forms a part of the brim of the pelvis. The belly is occupied by a layer of flesh, known as the internal iliac muscle. The lower portion of the bone is termed the base. This forms a greater part of the *acetabulum*. Immediately above the base is its neck, from which it begins to diverge outwards and upwards, becoming fan-shaped, forming the hip bone, the edge of which can be easily felt in any person. It is called the *crista ilii*, or crest of the ilium. This crest gives attachment to the muscles of the abdomen and back.

The *ischium* is next in size. It has a *base*, *body*,

spinous process, tuberosity, and ramus. The base forms the lower and thickest portion of the acetabulum; below the base, where it is narrowed to some extent, is its neck; from just below which is a projection, the spinous process. A correct understanding of the location and position of this is of great importance obstetrically, from the resistance it will sometimes offer to the advancement of the child's head during parturition. Its tuberosity (*tuber ischia*) is formed and descends from the neck a short distance, after which it turns upwards, at an acute angle, forming the ramus. The tuberosity is commonly known and readily recognized as the seat or buttock bone. The ischium is smooth on its inside, and forms one of the inclined planes of the pelvis; the outer side is rough, for the better attachment of its ligaments and muscles.

The *pubis*, commonly known as the share-bone, is the smallest of the three bones, and is located anterior to those previously described. It has a horizontal and descending ramus, a spinous process, and symphysis, or articulating surface. Its base is to the front, and is the thickest, though the smallest, part of the acetabulum, from which it proceeds, becoming narrower, forming the horizontal ramus, which, spreading out, terminates in a wider sheet, as it were, at its edge, the point of juncture (the symphysis pubis) with its fellow bone. From the lower part of the symphysis, the descending ramus proceeds to meet the ascending ramus of the ischium, forming with it one side or a half of the arch of the pubis. Inside and upon the upper margin of the horizontal ramus is a prominent ridge, the crest of the pubis. This, with the *linea ilia*, forms the *linea ilio-pectinea*,

which, together with the promontory of the sacrum, makes up the brim of the pelvis. The outer edges of the bone give attachment to the abdominal muscles—the transverse, oblique, and rectus.

The *sacrum* terminates the vertebral column, or backbone. It is triangular in shape, with its apex downwards. In comparison to its size it is the lightest bone in the body, being of a cellular or spongy texture. It has four surfaces: the internal and external, and two articulating or lateral. Its usual length is about four or four and a half inches; in width it is about four inches; and about two and a half inches in its greatest thickness. Its outer or posterior surface is rough, having spinous processes corresponding to those of the vertebræ. Its inner surface, the hollow of the sacrum, is smooth and concave, being crossed by four perceptible white lines, which mark the former divisions of the bone by cartilage. It has four pairs of holes, for the exit of filaments to form the great sciatic nerve. The upper inner edge forms the promontory of the sacrum, which, with the *linea ilio-pectinea*, completes the brim of the pelvis. The lateral surfaces are rough and uneven; they are joined to the ilia, forming the sacro-iliac symphysis.

The *coccygis* is composed of three or four bones, attached by its base to the apex of the sacrum. It is of considerable importance in the study of midwifery, from its position, as it forms one portion of the boundary of the inferior strait of the pelvis.

With this brief description of the separate parts or bones of the pelvis, we next proceed to consider it as a whole.

The pelvis is divided into the true and false, or upper and lower, or greater and lesser, pelvis: all that portion lying above the brim of the pelvis, before described as being formed by the line crossing the ilia to the promontory of the sacrum, and passing along the upper edge of the horizontal ramus of the pubis, and which together are known as the *linea ilio-pectinea*, or comb-like line, being the *greater, upper, or false pelvis*; whilst all below this line is denominated the *true, lower, and lesser pelvis*. The upper pelvis is also termed the pavilion. It is formed by the two last lumbar vertebræ, the ligaments passing to and from them to the ilia and the muscles of the abdomen. The lower or *true pelvis* is of the greatest importance in midwifery. It is divided into brim, cavity or excavation, and outlet. The brim is formed by the line before mentioned. Upon looking into the cavity from above, it presents a shape similar to the heart upon the ordinary playing-card. It has *three unequal diameters*: An *antero-posterior*, from before backwards, extending from the symphysis pubis to the promontory of the sacrum, which measures usually about four inches; this is also known as the conjugate or straight diameter. The next is the *transverse diameter*, which is at right angles to the former, and crosses the widest part of the pelvic strait; it is about five and a quarter inches in length. The third is the *oblique diameter*, extending from the junction of the sacrum with the ilium to a point opposite, on either side of the brim, immediately above the acetabulum; its length is about five inches. These measurements being that of the bone divested of the soft parts, as a matter of course they are somewhat diminished in life. The

true pelvis is the cavity between the brim or superior strait and the outlet or inferior strait of the pelvis. Its shape may be likened to that of a bent cone, its base looking upwards and forwards; its apex downwards and forwards. It is about an inch and a half deep in front, three and a half at the sides, and about five inches from the promontory of the sacrum to the tip of the coccygis.

The outlet, inferior, or lower strait, is irregular and rather oval-shaped; it is bounded by the tip of the coccygis, by the tuberosities of the ischium, and the symphysis pubis. It has usually two equal diameters: From the tip of the coccyx to the arch of the pubis is its antero-posterior diameter, and is about four inches in length. Its transverse diameter, extending from one tuberosity to the other, is generally about the same—four inches in length. The axes of the pelvis are two, one of the upper and one of the lower strait. An acquaintance with these axes is of the greatest importance in the practice of obstetrics, as by a knowledge of them we are often enabled to place the patient in a position most favorable for an easy and expeditious labor, thus offering a ready descent for the presenting part of the child through the brim into the cavity of the pelvis. The axis of the brim is a line drawn perpendicular to its plane, extending from about the region of the umbilicus or navel to the coccygis. The axis of the outlet or lower strait is a line perpendicular to its plane, extending from the promontory of the sacrum to a point about midway between the tuber ischia. These axes form an obtuse angle with each other, from which it will be readily discerned that the pelvic canal must be

a curve in form, its concavity looking forwards. The position of the pelvis, regarding the body in the living subject, is oblique, falling from behind forwards. There is some difference between the female and male pelvis, as there is also in the whole skeleton of the sexes, the bones of the latter being more firm and heavier than in the former, though not apparent to the superficial observer in their general aspect; but, if examined closely, it will be found that those of the female, though longer, are somewhat lighter and more delicately formed than in the male; in the former the *alæ* or wings of the ilia are more ample and wider spread out to either side than in the latter, which are converged and rise suddenly upwards. There is also a great difference in the long diameters as well as in the shape of the brim: that of the female being from side to side, whilst in the male it is from before backwards; besides, the cavity is smaller, straighter, deeper, and more tapering towards the outlet, the arch of the pubis being more of an acute angle and the tuberosities of the ischia closer together; whilst in the female the whole disposition of the outlet is of a nature to afford easy facility for the purpose it was originally formed by the great Creator, *i. e.*, to give ample and free course to the advancement of the child's head during parturition: the bones of which demand our consideration next.

The *Fœtal Head*.—A knowledge of the number of bones and the general conformation of the fœtal head are essential, in order to properly understand parturition and the mechanism of labor. The bones are the *frontal*, which at this period, just before or at birth, are divided into two, and may be more readily

known as the front or forehead bone; the two parietal, forming the arch, which arise from either side of the head and unite upon the top; the two temporal, which are located immediately below the last named, on either side of the head, and afford attachment for the ears, and then extend forwards to form the temples—hence their name; and the occipital, or that opposite to the frontal, forming the back part of the head. These bones, in the adult, are united to each other by a kind of dove-tailed arrangement called sutures; but in the fœtus, this union not having taken place, they admit of overlapping one another during the descent of the head in parturition; thus, by diminishing its size, affording easier facility for progress through the pelvic strait. At either end, before and back where the parietal bones come together at the top of the head, are spaces, commonly called moles, which are scientifically termed *fontanelles*, from it having been formerly supposed that they eliminated a moisture; that in front is called *bregma*, from the Greek, *brecha*, to moisten; whilst that behind is termed *vertex*, from *verto*, to turn; they are denominated, from their position, *anterior* and *posterior* fontanelles. They are of considerable importance in obstetrics, as they afford ready means of determining the position of the head during labor, being distinguished from one another, by the touch, by their different shape. The anterior is the largest and is quadrangular; it is formed by the rounding of the corners of the two frontal and parietal bones. The posterior is triangular-shaped, and is formed by the posterior ends of the parietals and the occipital bone. It will be observed that this

arrangement, besides the advantages above referred to, affords greater opportunity for the growth and development of the brain than if the cranium had been solid and unyielding. As a general circumstance, the skull of the male child will be found larger than that of the female, the average circumference in the former being about fourteen inches, whilst in the latter it varies from thirteen to thirteen and a half inches. Measuring the arch from ear to ear, over the crown of the head, it is usually found to be about seven and one quarter inches in males, and about seven inches in females; which difference, though slight, is important, in consideration of the pelvic cavity through which it has to pass.

THE FEMALE ORGANS OF GENERATION are divided into *external* and *internal*; the former, as a whole, are usually called the *pudenda* and sometimes the *vulva*. A brief consideration of these divisions will suffice the purpose of this work. The external are subdivided into the *mons veneris*, situated at the lowest part of the abdomen, and usually covered with hair in the adult; the *labia externa*, or external lips, which are two folds of skin, and mucous membrane, extending from the symphysis pubis to unite at the *perineum*, so called because it surrounds the two great outlets of the body. The point where this union takes place is called the posterior commissure, whilst that in front is termed the anterior commissure. These labia are, it seems, intended to protect the organs behind and between them. The *labia interna*, or internal lips, are called *minora* or smaller lips; also *nymphæ*, or the nymphs. They extend from the anterior commissure to about an inch downwards,

when they become lost in the folds of the labia externa.

The *Clitoris**—a name signifying to hide—is considered to be analogous to the male penis. It is situated just within the juncture of the nymphæ. It is the seat of sensuality in the female. Below this is a triangular space called the vestibule, in the lower part of which is found the orifice of the urethra—the canal communicating with and is the outlet of the bladder; it is about an inch and a half in length. Immediately within the vagina is found most frequently in the virgin a fold of membrane, usually of a crescentic shape, called the *hymen*. The absence of this is not of itself an evidence of loss of virginity. It is ruptured at the first sexual intercourse, and, contracting, forms small granulations, which, from their supposed resemblance to the myrtle, are termed *carunculæ myrtiformis*, or myrtle-shaped flesh.

The internal organs are the vagina, the uterus, and its appendages. The vagina, or sheath, is a short sac, extending from the vulva, coursing backwards and upwards to the uterus. Ordinarily it is about four or five inches in length, and about three inches in circumference, but becomes shorter and more capacious in those who have frequent sexual intercourse or have borne children. Its mucous membrane, or the lining, is rather of a pinkish hue in health. Besides the mucous membrane, it has two other layers of flesh, called its coats—the muscular and cellular; the former of these is sometimes denominated the middle, and the latter the external, whilst the mucous is known as the internal coat. This is covered with

* From the Greek *kletor*, a servant who invites guests.—*Dunghison*.

rugæ, or wrinkled folds, in its circumference, along its whole length; from which circumstance it admits of great distension and elongation during parturition. A collection of muscular fibres is found surrounding the external orifice or mouth of the vagina, which acts upon the same principle as a draw-string in a lady's old-fashioned reticule to reduce its size. Combined, they form the *sphincter vaginæ*.

The UTERUS, or womb, is a pear-shaped, hollow body, situated at the inner terminus of the vagina, which receives and overlaps the pendent and smaller portion about half an inch from its mouth. This arrangement will be better understood when the womb is considered in detail. For this purpose anatomists divide it into four parts, viz: the *fundus*, *body*, *cervix*, and *os tinæ*, or tench-mouth. The first, or fundus, is the upper and longest portion; just below this commences the body; whilst lower still, and tapering considerably, is the cervix or neck; and still lower is its mouth or os tinæ. Perhaps a more correct idea of the shape, position, and the above-named divisions of the womb, may be obtained from a well-formed inverted pear. The lower or narrow portion would represent the neck; the swelling part the body; and all above this the fundus; whilst the point where the stem is inserted would indicate the os tinæ or mouth. The usual size of the virgin womb is about from two and a half to three inches in length, two inches in width, and one inch in thickness. Its cavity is triangular in shape, the base being upwards; its angles are the points giving entrance to the tubes of Fallopius, whilst the lower angle communicates with the vagina through the canal of the neck of the womb.

This canal is from a half to three quarters of an inch in length; it is cylindrical in shape; its inner orifice is termed the *os interna* or inner mouth, in contradistinction to the outer or *os externum*. Like the vagina, the womb has three coverings or coats: the *internal*, *middle*, and *external*. These are technically denominated, in the order as above mentioned, the *mucous*, *muscular*, and *serous* coats. It is also covered before and behind by the peritoneum, a membrane which forms the lining coat of the walls of the abdomen, and, by being reflected upon the womb, serves to keep it in position; being continued to each side, it is inserted into the pelvis near the union of the sacrum and ilium, to form the *broad ligaments* of the uterus. It is this membrane that is so easily affected, sometimes during parturition, and the inflammation of which is known as puerperal peritonitis—a complication often so fatal to women. Within these ligaments are situated the ovaries and Fallopian tubes. Two cords arise from the upper sides of the womb, and, emerging from the abdominal cavity through the abdominal rings, they become lost in the areolar or cellular tissue of the groin, mons veneris, and labia majora. They are known as the round ligaments of the womb.

The *Fallopian tubes* are so-called from the anatomist Fallopius, who, it is no doubt justly alleged, was the first to describe them. When speaking of the cavity of the womb, it was mentioned as being triangular in form, the angles of the base being the points of entrance therein of these tubes. They are no larger in diameter than to barely admit a common-sized hog bristle, and arise obliquely from the womb

on either side. They are about four inches in length, extending to the ovaries, which they receive in a trumpet-shaped expansion, termed *fimbrio*, or fringed-like process. The peculiar manner in which they connect with the ovaries has induced some anatomists to call it the *morsus diabola*, or devil's bite. They are the excretory ducts of the *ovaries*.

The *ovaries* are two in number, and correspond to the testes in the male. They are situated upon the posterior face of the broad ligaments of the womb, and have, besides these, ligaments of their own, by which they are attached to the uterus. They are termed the *ligamentum ovarii*, or ligaments of the ovaries. The ovaries are oblong and flattened in form, about an inch and a half in length, three fourths of an inch in breadth, and nearly a half inch in thickness. They have two coats or coverings, interior to which is the true substance of the ovary, termed the *stroma*. In this stroma are found numerous little vesicles, varying in size, the larger generally being nearer the surface. These vesicles are called *Graafian* vesicles, from *Regneir de Graaf*, a German physician, to whom is attributed the honor of having first discovered them. Upon close examination they are found to have two coats also, within which is a cavity filled with albuminous fluid. Floating in this fluid is the ovum or egg, corresponding in all its details with the ordinary hen egg, but, as a matter of course, very much smaller in size. It contains a yolk, and in the center of the yolk a small vesicle, termed the *germinal vesicle*. Upon the covering of this vesicle is found its nucleus, called the *macula germinativa*, or germinal spot. Having now given a gen-

eral description of the anatomical structure of the parts immediately concerned in or belonging to midwifery, the necessity of giving them careful consideration and study cannot be too earnestly impressed upon the novice; as, without being somewhat familiar therewith, all that follows, in reference to menstruation, gestation, parturition, and diseases of females, would be but vague, ambiguous, apparently unmeaning, and perplexing to the mind.

MENSTRUATION.

The term menstruation is derived from the Latin *mensis*, a month, and is used to indicate that periodical condition peculiar to females, commonly denominated by them "monthly periods," "sickness," "courses," "flowers." It is most often termed among the medical profession *catamenia*, from the Greek, meaning literally into or through a month.

The discharge usually makes its first appearance when the female is between thirteen and sixteen years of age in this country, though instances are not wanting where it has occurred much earlier than the first or has been delayed beyond the last-mentioned period; but the above, being the average of its commencement, is generally received as the age of puberty. Besides the discharge at this period, nearly the whole female form undergoes somewhat of a change: the pudendum begins to be covered with hair; the breasts increase in size and fullness; the pelvis begins to spread out to either side more than formerly, thus giving to this portion of the body that peculiarity of development characteristic of the sex.

For some two or three days before the flow begins the patient is apt to complain of a general fullness or heaviness of the head, accompanied with a dull headache, pains in the back and loins. The face is usually flushed, and the eyes more brilliant than at other times. All of these symptoms vary in different individuals, and in the same at different times, being frequently very severe in some and not at all noticeable in others. As the time for the emission to begin draws near, the indications of its approach more or less subside, and in most cases almost entirely vanish with the appearance of the discharge, which usually continues three or four and sometimes five or six days, and then, becoming thinner and paler, entirely ceases until the next period, or about twenty-eight days, when it may occur without any or very few and slight premonitory symptoms.

The amount commonly emitted is from about four to eight ounces, but may vary according to idiosyncrasy, the constitution, and temperament of the individual. Thus, in a healthy, full habit, or *plethoric* person, it will attain to as much as twelve or more ounces without detriment to health, whilst in one of an opposite or weak constitution and habit of body—*anæmic*—even a discharge of four ounces may cause considerable weakness, lassitude, and uneasiness.

There is a marked difference existing between the menstrual fluid and ordinary venous blood: the former being somewhat of an acid character, possessing a peculiar odor, and does not coagulate; whilst the true blood is alkaline, and readily forms a *crescimentum* or clot upon being exposed to the atmosphere.

There have been numerous theories advanced respecting the cause of menstruation. The principal one is, that about every twenty-eight days the Graafian vesicles arise to the surface of an ovary, which, by becoming enlarged, impinges upon and irritates the *tunica albuginea*, (or covering of the ovary,) thereby determining a greater flow of blood to the ovaries and womb, which blood, being discharged into the latter, escapes through its cavity into the vagina.

The difference in the time before mentioned of the advent of the menstrual discharge may and does depend to a great extent upon certain peculiar conditions of constitution of some, and in others upon occupation, habit of life, and temperature—such as frequent exposure to warm atmosphere, an idle or sedentary life, or being exposed to circumstances calculated to excite sensual feelings, or continued sensual indulgence: all of these favor and will frequently hasten the approach of puberty, whilst circumstances of an opposite character are calculated to postpone it for a greater length of time. The period which this aptitude for procreation or menstrual term continues is about thirty or thirty-five years, or until the female has attained her forty-fifth or fiftieth year. As this subject will be referred to again, when considering that condition denominated “change of life,” we will leave it for the present, and pass to the consideration of the

DISEASES OF MENSTRUATION.

AMENORRHEA.—This term, signifying absence of or without the menses, comprehends two conditions: one which is termed *emansio mensium*, and relates to

that in which they have never appeared; and the other *suppressio mensium*, to that in which the discharge may have appeared one or more times, and then ceased, from some direct or indirect cause.

The first of these frequently depends upon a want of vigor in the system about the age of puberty, resulting, it may be, from previously depraved health, by which the power of any new action arising in the womb is impaired, or it may depend upon some malformation or absence of the ovaries, an imperfect formation of the Fallopian tubes, or an imperfect condition of the os uteri and hymen.

The *symptoms* that generally present themselves under these circumstances are a loss of appetite and former natural liveliness. The patient neglects or has little care to perform ordinary or even necessary duties of life. She becomes peevish and restless, with no power to concentrate the mind upon one subject for any length of time. She is continually weary, debilitated, and after a while begins to waste in flesh, with morbid appetite or desire for indigestible substances, such as charcoal, chalk, slate-pencils, plaster, and frequently the common earth. After some time, if not arrested, the result of the disease will probably be dropsical effusions in the lower extremities and abdomen. These usually become very much swollen or enlarged, particularly towards evening, though the enlargement of the latter may and frequently does depend upon the bowels being distended with flatus, which should not be confounded with the former or dropsical condition. The urine becomes very scanty, high-colored, or it may be more copious, and paler than formerly. The bowels are generally con-

stipated, accompanied with continuous headache and cold feet, even in warm weather. Whilst in some these symptoms may create considerable anxiety and alarm about their situation, in others they may frequently excite no uneasiness, and, if allowed to go unchecked, will produce moroseness or melancholy, with little or no interest in regard to themselves, relatives, friends, or in fact any person or thing at all, until the system at last is compelled to yield to the continued inroads made upon it, and the vital spark soon begins to wane, and presently goes entirely out: the natural result to be expected from the cough, expectoration, and morbid deposits, racking and vitiating the body and blood; whilst seemingly the patient is but too glad to embrace that sleep from which she is aware there can be no awaking in this world; but she longs to be relieved from all pain, sorrow, trouble, care, and distress forever and ever, in "that undiscovered country from whose bourn no traveler returns."

The *treatment* of this condition or disease depends upon the variety and intensity of the symptoms just enumerated. Of these the experienced physician is best qualified and capable of determining, as the disease may result principally from one of the anomalies before mentioned—imperforate os uteri or hymen—which a painless surgical operation would readily remove. But it is in this disease, probably, above all others, that young females or their mothers are liable to give trial to all the various nostrums usually advertised to cure this and all other female complaints before they mostly—often when it may be too late—call upon those who

"Could have the sovereign balm infused
That Chiron gave and Æsculapius used."

But which, instead of relieving the interesting and tender patient, the nostrums she has taken have only added to her misery and danger by delay; the disease the meanwhile breaking up entirely an already weak and debilitated constitution. How many have thus found early and premature graves, who might have lived to the full period of womanhood, ornaments alike to themselves and the circle in which they would have moved, enlivened and enriched by their graceful mien, industry, and intelligence, time alone can, as it certainly will, unfold. Therefore, patient and parents, when you or your child shall have arrived at that period of life when this discharge ought to occur, and any of the symptoms before mentioned make their appearance unaccompanied or not soon followed by the discharge, or if it does not make its appearance in four or five days, after using the usual remedies here set forth in these cases, such as the *tepid hip-bath*, *aloes*, and *iron*,* with injections of warm water into the vagina, do not hesitate to seek the advice of your physician, as the cause perhaps may be removed in a few minutes, as before indicated, which all the medicines in the pharmacœpia, singly or combined, would not effect, but prove deleterious and dangerous from delay.

SUPPRESSIO MENSIIUM.—This of itself may occur under two forms: first, when the discharge has set in at the usual periodical return, and been suddenly

*Take sulphate of iron..... 5 grains.
pulverized aloes..... 30 "

Mix, and divide into 20 pills. Dose: take one 3 times a day.

arrested from any cause, such as exposure to cold, powerful mental emotions, or undue excitement of any kind. It is then called *acute*, and is accompanied with pain in the back, violent headache, throbbing of the temples, and considerable fever. As a general thing this form will readily yield to the administration of gentle laxative medicines, cold applications to the head, followed or accompanied by the tepid hip-bath and cupping or bleeding, if necessary, with an occasional anodyne.

Take pulverized opium..... 1 grain.

“ camphor..... 10 “

Mix, and divide into 6 powders or pills. One to be taken every 4 hours, or until quiet is restored.

If it does not yield to these means, it may assume the second variety, or

Chronic form, resulting from the system having received such a violent shock as to impair some of the functions of the womb or its appendages; or this variety may depend upon a gradual failing of health, resulting from a morbid condition of the bowels, lungs, or liver. In this case the object of the treatment should be to remove the cause, by proper remedies directed to the organ involved. Having succeeded in this, the discharge will continue uninterrupted as before. Another cause of the cessation of the menses must always be borne in mind, in order that it may not be confounded with either of the other causes mentioned, as serious and unhappy results might ensue therefrom, and a pregnancy, as will after a while be learned, destroyed.

DYSMENORRHŒA.—The term dysmenorrhœa signifies difficult or painful menstruation. It may and

often does take place at the very commencement of menstrual life, but frequently does not occur until after marriage, or it may be not until after the birth of the first child. But some individuals, it seems, are liable to it at any time during the menstrual period.

The indications of the approach of the menses under these circumstances are more or less severe for a day or two before their appearance. The patient, in most cases, is seized with acute and even terrible pains in the lower part of the abdomen, extending around to the back and loins, accompanied by more or less general fever and excitement until the discharge appears, which is usually scanty, and consisting of a shred-like membranous substance and mucous tinged with blood, when the pain becomes more aggravated and intense. From the peculiarity of this discharge it is apt to be supposed, as is often the case with the married, to be a false conception, especially if they (as it is possible they may) have passed through one or more monthly periods without the usual indications of its approach.

The disease is attributed to an organic affection of the womb, or a want of nervous energy in the same, resulting from exposure to cold and dampness, or it may be sometimes from excessive venery. How far this latter may be instrumental, as a cause of this complaint, may be inferred from the fact that those mostly affected with it are generally of an unusual amorous tendency. Dr. Macintosh, of Edinburgh, an old but, it is thought, a good authority, contended that dysmenorrhœa, in most cases, depends upon an unnatural narrowness of the canal of the cervix or neck

of the womb; for which condition he recommends distension by the introduction of bougies, beginning with a small-sized one at first, and gradually increasing until he arrives at No. 10, at intervals of from two to several days.

The treatment, during the attack, must be palliative; for this purpose nothing can answer better than the "solution of the *bimeconite* of morphia,"* in doses of from ten to fifteen drops, at intervals of from three to four hours; or—

Take hydrate of chloral 1 drachm.

 sirup of ginger,
 orange-flower water, } of each 1 ounce.

Give a teaspoonful every hour until relieved.

The hip-bath, or the application of a fly-blister to the sacrum, will be found useful in mollifying the attack. In the interval of an attack, moderate indulgence in the venereal congress must be strictly enjoined; say once a month or once in two or three weeks, is, or ought to be, sufficient to satisfy the appetite of those who desire to have children like olive branches growing up around them, and become entirely cured of the painful malady.

MENORRHAGIA, or an immoderate flow of the menses, paradoxical as it seems, may result from two opposite conditions, viz: a plethoric or full habit of body, or from a general debilitated, weak, and relaxed condition of the same, extending to the womb and its blood vessels; or it may be, as not unfrequently is the case, from ulcerations of the mouth of the womb. In the former condition of the system it is not apt to produce any uneasiness, except from the

* Beasley in Griffith's formula.

inconvenience it causes, and may be easily arrested, sometimes by a counter-bleeding or the administration of saline purgatives and astringent injections. The best for this purpose is a solution of the persulphate of iron—Monsel's salt—forty grains to a pint of rain-water, to be retained some minutes in the vagina. In the second and third instances menorrhagia is accompanied with a weak pulse, dizziness of the head, especially when changing from the recumbent to the erect posture, singing in the ears, more or less palpitation of the heart, and considerable nervousness, with pains in the back, loins, and lower part of the abdomen.

The object to be obtained, under these circumstances, is the arrest of the flow at once, by exhibiting acetate of lead, combined with opium.

Take sugar of lead.....	12 grains.
pulverized opium.....	1 “

Mix, and divide into 6 pills or powders. Dose: 1 every 4 hours, and repeat if necessary.

It is not advisable to continue beyond more than 24 grains of the lead without an intermission of at least twenty-four hours. If there is not much pain, the pulverized myristica (powdered nutmeg) in five to ten-grain doses, may be substituted for the opiate, as the latter is cumulative. Tonics, such as Peruvian bark, wine, and iron may be given to restore tone to the general system. The *secale cereale*—spurred rye, or ergot—has of late been found to prove efficient in stopping the flow when all other means have failed. The author has, at this writing, a case just recovering, which is attributed to the ergot, combined with the *ferri pulvis* (iron by hydrogen)

and a small portion of opium. The following is the formula:

Take pulverized ergot.....	6	scruples.
“ iron by hydrogen...	12	grains.
“ opium.....	1	“

Mix, and divide into 6 powders. One to be given about 3 times per day.

There has been no discharge for five or six days, and the patient is able to go about her usual duties without anticipating further trouble. The per-sulphate of iron before mentioned, or the per-chloride of iron in solution, will be found useful as an astringent injection. It is requisite, during the treatment, to enjoin the strictest quiet, by rest in the horizontal position. The discharge may cease for a day or two, and the patient, thinking herself well, is apt, unless otherwise advised, to undertake duties too arduous for her prostrate condition, and thereby provoke the return of the discharge; therefore it cannot be too strenuously enforced upon her to undertake as little business as possible that may require much moving about during convalescence.

VICARIOUS MENSTRUATION.

Sometimes, when the menses do not appear at the expected period, or if they have appeared one or more times and they cease from any cause, hemorrhage may occur from some other organ or part; as, for instance, the nose, gums, lungs, or stomach. This is called vicarious menstruation, which, though often causing much uneasiness, is not necessarily dangerous, and seldom ever leaves any serious complications behind it.

CESSATION OF THE MENSES, "CRITICAL PERIOD,"
"CHANGE OF LIFE."

All of these terms are applied to that period, before referred to, at which the menses altogether cease. About this period usually, and for some months prior thereto, either one or all of the conditions we have just considered may exist in different persons, according to circumstances, constitution, and temperament. The discharge becomes irregular, disappearing altogether for a while, and then re-appearing, inducing the belief in some, from the physical indications sometimes attending at this time—such as an enlargement of the abdomen and tenderness of the breasts, accompanied with nausea and vomiting, especially in the morning—that pregnancy exists, during this transition state which the constitution is undergoing. Not unfrequently there is considerable pain about the loins, in the back, and womb, which, as usually expressed by the patient, are of a "dragging" character, accompanied with violent headache, coated tongue, great thirst, and general fever, attended with a bloody discharge from the womb. If the patient has a predisposition to any organic disease, it is apt to become aggravated and excited at this time, and may soon terminate in death. Whilst some may have to endure all these symptoms and sufferings, many more pass through the period without any trouble or inconvenience whatever. In fact, with these it is an end of all trouble, especially with those who have been afflicted with that painful complaint dysmenorrhœa. These now begin to enjoy

better health, the form becoming more rotund, and in some extending to corpulency and portliness.

The *treatment* in this, as in the other diseases of menstruation, must be varied according to the constitution, condition, and temperament of the patient. General attention to the bowels, with warm clothing, proper diet, and sufficient exercise, with care not to be exposed to damp or unwholesome air, will usually be all that is necessary to bring about a favorable result. If any complications should manifest themselves, they are to be treated upon general principles, according to the indications and the organs affected.

It is in the vicissitudes, anxiety, and trials incident to the aggravated forms of this period of life that women generally are apt to seek relief in the numerous *nostrums* which purport to give relief in and cure these cases, when in most instances, as above intimated, all that is necessary is to be governed by the means we have pointed out, and nature will do the rest and finish the work of cure in ample, good, and due time.

It is very natural that every female should feel some anxiety about herself, and it is that very anxiety that is apt to urge her to do that which she should not, and which is unnecessary and hurtful; for in every instance where recourse has been had to quack remedies the testimony of every physician will bear record to the statement they have only been productive of harm. As the author has taken occasion when upon the subject of amenorrhœa to warn the reader against this class of medicines, and as he has upon all occasions, in private

practice, when opportunity offered itself, deemed it a duty to patients to warn them of their utter uselessness, he would here reiterate his unqualified opposition to them in whatever form they may present themselves. And to that class who may think that this opposition, which is general among and is the sentiment of every good and intelligent physician, arises from anything of a jealous, envious, sinister, or selfish motive, it may be necessary to say, they are greatly—most decidedly—mistaken, and thereby deceiving themselves, and nurturing, as it were, in their own bosoms the poisonous asp, which will gradually and now is, perhaps, infusing into them a venom that is impinging upon, vitiating, and hastily crowding out the vital spark in their own mind and body, and perpetuating it as a heritage to their children's children. Because he is aware of this fact, that is the reason, the only reason, why the good physician, my dear reader, would warn you against them; and besides he knows that ninety-nine out of a hundred of these preparations do not contain any of the ingredients they purport, or are not in any respect what they are represented to be; for the originators of them are mostly enthusiasts or designing men—such as broken-down, incompetent doctors, circus, and menagerie followers, who possess no knowledge of the properties of medicines or therapeutics, and, as a matter of course, can have no experience as to their effects upon the system. Just for a moment consider the assurance, not to say folly, of the author of one of these nostrums giving out that his medicine will cure all of those conditions *supposed* by many to exist in themselves during this “change of

life"—such as consumption, liver complaint, womb and kidney diseases, etc.—who not only does not understand the true function of these organs, but has no idea of their form, size, or position in the human body, much less the diseases peculiar to them, or, if shown them, could not tell if they were in a healthy or diseased state; when sometimes, from various causes, depending upon peculiarities and idiosyncrasies of the individual affected, a disease will baffle the skill of those who have grown old and gray-headed in the service, and whose knowledge and experience necessarily make them acquainted with every organ and every tissue in the human frame even to their utmost minutiae, with their physiology and functions. In view of all these facts, beholding an intelligent being so thoughtless, so reckless, we are ready to exclaim with one of old—

“Can such things be, and overcome us like a summer cloud,
Without our special wonder?”

LEUCORRHŒA.*

This disease, commonly called whites, is a *mucous discharge* from the vagina and womb. When from the former only, it has somewhat the appearance of thin starch, both in color and consistency; and the same when from the womb, except that the color is of a yellowish green or a brownish hue. If any ulceration of the os uteri exist, which is often the case when the disease is protracted from neglect, it is at times tinged with streaks of blood.

* From the Greek *leukos*, “white,” and *rho*, “I flow.”

Females are liable to this disease in some form at all ages, even in childhood. The author has treated one case in a child only two years of age, which otherwise apparently had enjoyed previous good health. In this case the discharge was evidently from the vagina alone. It was considered to be and treated as an exaltation of secretion only. To explain, for the benefit of the novice: the mucous or lining membrane of the vagina and womb, in health, eliminate from their surfaces a sufficient amount of moisture to lubricate the parts, so that where they impinge upon each other they can do so readily, without producing undue irritation or inflammation. In health this mucus is a natural secretion; therefore anything occurring to cause an unusual excitement of the membrane may increase the secretion to such an extent as may be unnecessary for normal purposes; consequently it is freely discharged. Hence in simple cases it is said to be a mere exaltation of secretion, which may be looked upon as the first stage of an inflammation, or a simple irritation of the parts. This condition, it will be perceived, can be brought about by various causes, but it is generally in women who have borne children that it presents itself in its most formidable aspect, that being one of the greatest causes tending to excite and thereby weaken the parts; others being excessive venery, exposure to extreme heat or cold, general debility, and one or more abortions.

In its incipency the disease is painless, and goes frequently unnoticed, except from the inconvenience arising from the slight discharge at first; but, by being neglected, the irritation, extending along the

vagina up to and into the womb, these organs soon assume a low form of inflammation, followed by decided ulcerations of the mouth of the womb; and if still further neglected, as sometimes is the case, even at this stage, the whole of the internal organs of generation may become involved, and then it is that the patient, whose symptoms were hitherto so slight, by their being aggravated, begins to complain of a sense of weight in the lower part of the abdomen, pains in the back, and soreness between the hips, extending down into and along the thighs to the knees.

The discharge usually increases in quantity just before the time for the return of the monthly flow, and, upon the appearance of the menses, subsides or becomes lost in that fluid, then appearing again immediately upon the cessation of the same. It is mostly owing to a want of attention and treatment in the early stages that this disease becomes so formidable in opposition to the means used to subdue and eradicate it from the now broken-down and debilitated system.

Treatment.—If attended to in its incipency, the disease will yield to proper local remedies—such as washing the parts with warm water and Spanish soap two or three times per day, after which, on each occasion, with a strong solution of *sulphate of zinc*, (white vitriol,) say about two drachms of the sulphate to a half pint of rain or river-water. When the disease has further advanced a strong solution of *nitrate of silver* (lunar caustic) will be required: about forty grains to the ounce of water, or the stick caustic itself applied through a speculum to

the abraded parts of the vagina and womb. In the meantime the general system should be supported with tonics—such as iron, quinine, and a little wine,* in debilitated persons; in those of a plethoric or full habit of body, leeches to the perineum or lower part of the abdomen, with a proper attention to the bowels, keeping them well opened by means of saline purgatives, such as magnesia, epsom salts, cream of tartar, or the free use of Congress water, will be all that is necessary in most cases. A blister to the sacrum will often relieve the pain in the back and loins, and prove useful by acting as a counter-irritant and assisting in the cure.

HYSTERALGIA, OR IRRITABLE UTERUS.

This disease, though sometimes met with in young females, most commonly occurs not until about the period of middle life. It is characterized by pains in the loins, extending around and through the pelvis, and down the thighs to the knees. The pain is sometimes acute and shooting; at other times it amounts to merely a soreness, which is relieved for the time being by external pressure, but becomes more aggravated by excitement of any kind, or by the touch of examination per vaginum about the body and neck of the womb. The patient is apt to describe the sensation of pain as if a knife had been plunged into the womb.

It is accompanied generally with a dry, hot skin,

*An ounce of yellow cinchona bark in a pint of good Madeira wine, if allowed to stand a day or two, will be found an excellent tonic, in doses of a wineglassful three times a day before or after meals.

frequent pulse, and some irritability of the stomach, bowels, and kidneys.

The *causes* of this disease may be divided into predisposing and exciting. Among the former may be enumerated temperament, education, or an undue yielding to the demands of fashionable life, and not unfrequently prolonged nursing. The exciting causes are abortion, over-exertion, falling of the womb, and too free exposure of person during menstruation.

The *treatment* consists mainly in the administration of anodynes, and endeavoring at the same time to improve the general health by tonics, baths, (medicated,) proper exercise, good diet, and cheerful company. The best, simplest, and safest anodynes and soporifics in this disease are the solution of the bimeconate of morphia, about 25 to 30 drops, or the hydrate of chloral in 8-grain doses, every two or three hours until relieved, and the local application, by means of lint saturated with a mixture composed of deodorized tincture of opium, 2 drachms to 1 ounce of glycerine. The wad of lint should not be too large, or it may prove painful. It must be well pushed up against the mouth of the womb and retained there to be effectual.

In atonic or debilitated cases the following may be given:

Take extract of taraxicum.....	12 grains.
“ leptrandrin.....	2 “
“ gentian.....	6 “
“ hyoscyamus.....	2 “
“ St. Ignatius’ bean.....	1 “
quinine.....	8 “

Mix, and divide into 12 pills. Dose: one to be taken every 4 hours.

The formula for the hydrate of chloral may be as follows:

Take of chloral.....	1 drachm.
simple sirup.....	} of each $\frac{1}{2}$ ounce.
orange flower water	

Mix. Of this mixture a teaspoonful may be given every two or three hours until pain ceases.

PROLAPSUS UTERI, OR FALLING OF THE WOMB.

The above terms are applied to that condition where the womb gravitates below its natural position, and remains low down in the vagina. When it protrudes beyond the external lips, it is called *proidentia uteri*.

If we consider the manner in which the womb is suspended by its ligaments in the abdominal cavity, (as shown in the anatomical portion of this work,) it will be readily perceived that any force operating from above, auxiliary to gravitation itself, will materially assist in bringing about this and the other *misplacements*, as they are frequently termed, by relaxing and prolonging its cords. To tight lacing, therefore, probably more than any other cause, may be traced this unhappy condition or disease. By it the chest and abdominal cavities are diminished and circumscribed, the liver, spleen, and intestines forced down upon the womb, and it in turn compelled to occupy a place considerably below its normal position, and from which it is unable to rise during the short interval of undress, or that in which the corset is laid aside. If our lady readers would only bear these facts in mind, and govern themselves accordingly whilst yet young, the physical suffering they

may thereby escape can only be realized by witnessing those of an unfortunate one whose folly has entailed this dreadful complaint upon herself.

The disease in some individuals is unattended with any suffering more than the inconvenience experienced by the protrusion and the discharge, always present, from the relaxed state of the womb; whilst in others, in addition to the above, there is constant pain in the back and lower part of the abdomen, extending down the whole length of the lower extremities to the toes; or the symptoms may be still more aggravated, with greater pain while standing or moving about, or in the necessary efforts to evacuate the bowels and bladder, both of which may be very irritable, accompanied with a general debility of the whole system and loss of appetite, furred tongue, and accelerated pulse. Besides the above causes, operating to produce prolapsus of the womb, there may be an undue heaviness of the organ itself, which is increased, and consequently may occur during the first months of pregnancy ovarian and other tumors; relaxation of the ligaments of the womb, from too early getting-up after confinement, or from neglecting to apply the usual bandage after delivery; unusual bodily exercise, such as dancing, running, romping; and also excessive coughing or straining of the bowels, as in dysentery and diarrhea.

The *treatment* consists in anointing the hand and dependent parts with olive oil or lard, then gently pushing the womb upwards into its proper location, after which, for sometime, rest in the horizontal position, and the use of astringent injections: For example, a solution of alum in strong red-oak bark tea;

or sugar of lead and sulphate of zinc, in the same menstruum or rain-water, with mechanical support by means of *pessaries*. These are of various kinds, shapes, and sizes. The manner of introducing them, generally, when of an oval shape, is to place the patient upon her back, and then, after well anointing the pessary with olive oil or unsalted lard, introduce its long diameter first, until it has reached the desired height, just above the *tuber ischia*, when it must be turned, so as to lie transversely across the outer or lower strait of the pelvis, with its long diameter from before backwards.

The *globe pessary* can be easily introduced, as it requires no turning. A proper-sized rubber ball will answer the purpose of a temporary or even permanent pessary. These should be removed, washed, anointed, and replaced at least once a day. Besides these internal, there are various external supports known as abdominal supporters. These vary in merit almost in proportion to their different styles and shapes. There are two supports or corsets, named respectively after their patentees, which are deemed of special merit, and for no other reason are they referred to here. They are Mrs. Moody's abdominal corset and Mrs. Willis's abdominal support. They, as well as the different trusses, pessaries, and supports, can be obtained from any surgical-instrument maker, or from druggists and apothecaries generally.

The constitution in the mean time must be attended to, and, if weak and relaxed, as generally is the case, must be supported by good diet, Peruvian-bark tea, or quinine, wine, and iron. When, after protract-

ed persistence therein, these means fail, it may become necessary to have recourse to surgical operation, by which a portion of the vagina is removed. The parts, by being brought together, heal and contract its size, which may act as a bar against further protrusion.

ANTEVERSION OF THE WOMB,

Or, as the name indicates, an inclination of the fundus of the womb forwards, thus occupying a transverse position in the pelvis.

The indications of this displacement are a sense of weight or dragging in the loins and pelvis, with pain in the lower part of the abdomen, increased by exertion. Upon examination per vagina, this channel will be found blocked up, by the womb lying across, with the mouth directed towards the sacrum, and the fundus towards the symphysis pubis.

Treatment.—If no adhesion or growing together, as it is commonly termed, has taken place, resulting from previous inflammation of the parts, the os may be drawn down by the finger of one hand, and the fundus at the same time pushed up with the other. The patient should be kept quiet upon her back for some days after this operation, or until the parts involved have regained their former tone. Sometimes a cure may be induced by directing the patient to keep the bladder full and distended, and the rectum, to such degree as may be possible, continually empty. The cause of this tilting forwards of the womb may result from a continued reversed state of the organs just mentioned, or excessive expulsive efforts, either during or after urinating, together with falls, blows, or the contraction of the round ligaments of the

womb; also chronic diarrhea, and from the general relaxation of the body produced by it.

Anteflexion is applied to that condition in which the womb is bent upon itself. The term is generally used synonymously with *anteversion*.

RETROVERSION OF THE WOMB

Is the reverse of the former condition, or a bending backwards of the fundus of the womb, or an inclination in the same direction of the whole organ. It is termed *retroflexion* in the first instance, *retroversion* in the latter.

Retroversion of the womb generally occurs between the third and fourth month of pregnancy, and is accompanied with more violent pains than in the other varieties of displacement. The bearing-down pains are more severe, with a sense of fullness and distension about the sacrum, accompanied with a partial inability to evacuate the bowels or bladder, on account of the fundus pressing against the rectum and the os against the neck of the bladder: the former being usually found, upon examination, within the hollow of the sacrum, and the latter thrust up behind the symphysis pubis.

The treatment is first to empty the bladder by means of a catheter, and the rectum by injections; then, after placing the patient upon her hands and knees, pass the finger up into the latter until the fundus is reached, which should be pushed upwards, at the same time with one finger of the other hand in the vagina the os may be hooked and brought down. Not unfrequently the mere emptying of the

bladder and rectum will be all that is necessary ; as the womb, from being impacted between them, becomes liberated, it will sometimes rectify itself by the natural contraction of the round ligaments. It will be required, perhaps, at times, to rupture the ovum and allow the womb to contract ; but, as a matter of course, this should not be resorted to until all other means have failed. The after treatment is rest in the horizontal position and keeping the bladder and rectum empty. Pessaries may be used to retain the womb *in situ* in all displacements, if necessary.

Cause.—The womb is liable to this displacement, during the first months of pregnancy, from any sudden impulse backwards, or by a distended bladder, long standing, or a sudden expulsive effort at stool. It may also result from falls, blows, sudden shocks, or straining in lifting, or by tumors in the neighborhood of the fundus of the womb.

GENERATION.

“I am fearfully and wonderfully made ; marvelous are thy works ; and that my soul knoweth right well. My substance was not hid from thee, when I was made in secret, and curiously wrought in the lowest parts of the earth. Thine eyes did see my substance, being yet unperfect ; and in thy book all my members were written, which in continuance were fashioned, when as yet there was none of them.”

If that remarkable man, whose language we have just quoted, could thus sing, with the limited knowledge of the mechanism of man possessed by mankind in his time, what would be his amazement, wonder, love, and praise to the great “I Am,” did

he live in our day, in the contemplation of his frame, when the intricacy and working of the human machine has been examined and exposed in all its most minute and important parts—whilst its development can be traced step by step from away back into the very beginning of its being in the parent womb! Alas! we cannot even attempt to portray the eloquent strain of adoration that would burst from his overflowing soul of love, but we may content and console ourselves by singing with another the appropriate lines :

“Thy amazing works, Almighty God,
My rising soul surveys,
Transported by the gaze, I stand
In wonder, love, and praise.”

By the term generation is meant that vital process, resulting from the union of the opposite sexes, by which the species are reproduced and continued from one to another of the same kind. What is to be said here will be confined to our own species. Having already shown (see Menstruation) that the power of procreation is not present in the female until she has arrived at the age of pubescence, it may be proper to state here that, except in very few instances, the same power does not exist in the male until he has reached his fourteenth or fifteenth year, at which period the instinctive desire to exercise the prerogative manifests itself, and continues, to a greater or less extent, until he has reached his three-score and ten years. As certain circumstances and mental emotions tend to hasten or prolong the period in the female, so may the same operate to expedite or delay it in the male.

The human spermatozoa has a diminutive oval-shaped flattened body, varying in size from the one-six hundredth to the one-eight hundredth of a line, (a line is the one-twelfth part of an inch,) from which proceeds a gradually tapering tail, about one-fortieth or one-fiftieth of a line in length, by which they are enabled to propel themselves in the seminal fluid, in which, after emission, especially when lodged in the generative organs of the female or in the urine, they may retain their vitality several days. The ova has already been described. (See Anatomy.) There are two general theories in regard to generation, which will be but briefly noticed: one is called *epigenesis*, or that in which each parent is instrumental in contributing to the development of the new being; the other is called *evolution*, in which it is contended that the first creation of each species contains within itself all the individuals of that species in miniature that shall ever exist. It has also been called the *emboitment* or insertion theory, or that in which the female supplies the essential matter necessary for the development of the offspring, attributing to the male the power only of arousing that innate but hitherto dormant tendency to reproduction in the female.

The former is the most plausible as well as the most rational, and it is the generally accepted theory, although the exact point at which conception takes place, it seems, is not so easily determined or understood. One physiologist contends that it is in the ovaries themselves; another, not until the ovum has been discharged from the ovaries into the womb, where it is acted upon by the spermatozoa, which

at the same time has found its way into that cavity. It is the opinion of Coste and some others, that disintegration of the ovule takes place within twelve hours after it is given up by the ovary, which process may have commenced far up in the Fallopian tube, or near its uterine extremity, or not until it has entered into the womb. It does not matter materially where the exact point of contact takes place; but it is very certain that actual contact of ovule and spermatozoa is necessary to effect fecundation; the former opening itself, as it were, to receive the larger portion of the latter. The result of this union of ovule and spermatozoa is a great irritation in the womb, Fallopian tubes, and all the adjacent parts, from the transitory action taking place in the ovum; which process continuing, the ovum, by drawing nutriment from the material immediately surrounding it, begins to develop itself; the womb, in the meantime, increasing in size in the same ratio, whilst upon its inner surface there is in process of formation a lining called the *deciduous membrane* or *caducous*. There is a difference of opinion existing among physiologists as to the exact manner of the formation of this membrane: some, explaining it, maintain that the whole interior wall of the cavity of the womb becomes covered over with a plastic substance, eliminated from its surface, which after a while becomes somewhat hard, resembling coagulated lymph, when it is denominated the *decidua vera*. The ovum, in its efforts to make its way into the womb, pushes before it that portion of the decidua vera covering the mouth of the Fallopian tube, which portion becomes the decidua reflexa,

from its being reflected over the ovum and still covering it, now that it is entirely within the cavity of the womb. Other investigators consider that the decidua vera is the normal lining of the womb, which has undergone a considerable change from the excitement before spoken of produced therein. Dr. Reid, upon examining the inner surface of a recently impregnated womb, discovered upon its free surface a tubular structure, which tubes were found to contain a lining of white epithelium, and, inasmuch as the decidua reflexa is found, as contended, to differ somewhat in structure from the decidua vera, apparently believes that the latter must be the more plausible and correct view in the premises. In either case, however, that portion covering the ovum must retain the title of decidua reflexa for the time being.

When the ovum has become fecundated and matured within the womb, it is called *viviparous generation*—from *vivius*, alive, and *pario*, to bring forth—and is applied generally to all animals that bring forth their young alive, and of course is the same that takes place in the human female. With this brief allusion to it (for it would take more space than could be allowed in a work like this to fully consider the subject) we will now pass to the consideration of the process of the

DEVELOPMENT OF THE FÆTUS.

Fecundation or conception having, under the circumstances above described, taken place, the first noticeable change that occurs is in the yolk itself, which divides and subdivides itself, first into two, then into four, and then again into eight separate

segments or parts, each of which contains a vesicle. These vesicles are supposed to be the descendants of the primary cell. This subdividing process continues, until after awhile the whole yolk cavity becomes filled with cells, forming a mass somewhat resembling the mulberry in appearance; hence it is termed the *mulberry mass*. Each segment of the mass is inclosed in an envelope or covering, which converts it into a vesicle, the portion within each forming its nucleus. This process, beginning with the outer vesicles, or those upon the surface of the yolk, forms something of a membrane, which becomes thicker as the process continues inwards, and, new cells being formed, results in the formation of what is called the *germinal membrane*, or covering surrounding the whole of the yolk, wherein is contained the necessary material for the future embryo, denominated the *blastodermic*, or *budding vesicle*. Accumulating upon a part of this vesicle a number of diminutive cells soon present themselves. They are collectively termed the *area germinativa*, from which is developed all the structure of permanent organism; whilst the germinal membrane divides itself into two layers, the *inner* being *mucous*, and the *outer serous* tissue, between which two layers soon after is developed another, called the *vascular layer*. The *first* of these subsequently becomes the digestive apparatus, the *second* the integument or skin, and the *third* or middle the vascular system.

At the point where the main portion of the embryo is being developed the outer or serous layer spoken of forms into two folds, which arise simultaneously on each side of the embryo to form the inner mem-

brane or lining of the ovum. This membrane, as after a while will be discovered, is known as the *amnion*. The folds continue to rise and approach each other until they meet, and, as each fold contains two layers of tissue, they form a double covering for the embryo. The *outer* layer subsequently becomes attached to the chorion, or outer membrane of the ovum, whilst the other forms a distinct shut sac. This membrane—the *amnion*—at first is a continuation of the common covering of the embryo, and embraces it quite closely. Afterwards it becomes distended, and is separated therefrom by a fluid, which is eliminated from its surface, and therefrom denominated the *liquor amnii*. It is also reflected upon the *funis*, or umbilical cord, forming its outer covering, which terminates at the *umbilicus*, or navel. Its texture is transparent, and, though very thin, is quite tough, and not so easily torn as the other membranes.

The *liquor amnii*, just spoken of, inclosed within this membrane, and in which the foetus is suspended, not only nurtures the embryo in its earlier stages of formation, but protects it from the jars and concussions it would be exposed to if it rested upon the solid tissues, during the ordinary movements of the mother, and which, though performed apparently with the greatest ease and regard for the child, would probably result in its early death. This fluid, though usually in quantity not more than a pint or a pint and a half, sometimes, but rarely, amounts to two quarts or even more when the foetus has become fully developed.

The *inner* or *mucous layer*, before spoken of, by doubling up under the abdomen of the embryo, forms

a little cavity, the *umbilical vesicle*, in which is inclosed the remaining portion of the yolk: upon this the embryo subsists until it is all absorbed—the cavity in the meantime becoming contracted until a small opening only remains, which is soon closed and becomes entirely detached.

The yolk having been all taken up as nutriment, the embryo has advanced to that stage wherein it requires nourishment of a different character. This is supplied also from the mucons layer, by a very thin and transparent *membrane*, arising from the lower or what may be termed the caudal extremity of the embryo, passing up between the amnion and chorion, carrying with it an artery and vein, and coming in contact with that portion of the chorion where its villi are most numerous, to which the vessels within attach themselves, to form, at a later period, the placenta. This membrane, in its turn, becomes absorbed or shrivels away, with the exception of that portion near its origin, which afterwards becomes the urinary bladder. The former of these developments from the mucous layer results in what is termed the *umbilical vesicle*, whilst the latter forms the *allantois*, traces of both of which may be found upon the umbilical cord at an advanced stage of gestation.

Outside and surrounding the whole of the ovum is formed the *chorion* mentioned above. It is a tough fibrous membrane, similar in construction and corresponds to that which presents itself upon breaking the egg-shell of the common chicken, lying immediately under it and forming its lining, as it were, and sometimes adhering to it. In our species it incloses the ovum, and is situated between it and the walls

of the womb; upon a portion of it is formed, layer upon layer, little villi, which serve, in this stage of development, in the same capacity as the umbilical vesicle and allantois, which it has succeeded for the purpose of furnishing proper nutriment to the fœtus. These villi, as the fœtus advances to maturity, are, in part, absorbed, whilst the remainder undergo a change, which ultimately results in the formation of the umbilical cord and THE PLACENTA, by and through which the fœtus receives the required nourishment from the parent during the remainder of its intra-uterine life. The formation of this organ—the placenta—commences about the middle or the latter part of the second month, and continues to increase in proportion to the growth of the fœtus and the consequent demands upon it until it attains its usual circumscribed size, which is from about six to seven inches in diameter and eighteen or twenty in circumference. It communicates with the fœtus through THE UMBILICAL CORD, which arises in most cases from its center, and is composed of two umbilical arteries and one vein. The whole is invested with a reflexion from the amnion. The average length of the cord is about eighteen inches, though often much shorter—sometimes so much so as seriously to interfere with the progress of labor. Instead of arising from the center, at times the cord is found attached to the edge of the placenta: in such instances it is termed the *battledore placenta*.

Having now traced out the development of the means whereby the fœtus must depend for its subsistence and growth, we now return to the development of the fœtus itself, where we find, in the cluster

of cells, before mentioned as the *area germinativa*, first making their appearance the spinal cord and vertebral column, (chorda dorsalis.) At the same time, and now to be seen in the middle layer of the germinal membrane before spoken of, is the *vascular* layer, which is formed, as it were, for the very purpose of taking up the nutriment supplied by the yolk and conducting it to the tissues of the embryo, and forming a delicate net-work of vessels. The *vascular area*, immediately surrounding the embryo, then gradually extending, soon covers the whole of the germinal membrane. It will now readily be perceived that this is the agency through which the nutritious matter of the yolk is introduced into the embryo. These vessels terminate in two large trunks, which are called *amphola mesenterica*, from their extending at once to the intestines and umbilicus; they are also termed vitelline vessels. The fluid, or, what it really is, the blood of the parent, first moves toward the embryo before the formation of its heart. This latter is also formed in the vascular layer by a distension of the trunk, wherein the union of blood vessels takes place. The heart appears, at the beginning of its formation, as a mere excavation, but after awhile its walls become gradually developed and its cavities fully formed.

Synchronous, or along with the formation of the vascular system, the digestive cavity makes its appearance in that portion of the yolk-bag lying immediately under the embryo, there separating and doubling in upon itself to form a cavity, which afterwards becomes elongated to form the stomach and intestinal canal.

At this period the trunk of the embryo has become considerably developed in length, breadth, and thickness. At its upper extremity a small depression may be now seen, just beyond which, and swelling from it, is a small prominence. The former of these represents the neck, and the latter the embryotic head, which portions now begin to be more rapidly developed and matured in proportion to the other parts. These stages of formation embrace the whole of the first month of intra-uterine life.

At the beginning of the second month the head has reached a size nearly equal to one-half of the body; whilst the extremities—arms and legs—begin to be formed; the former of these or upper making their appearance first by a little protuberance jutting out from the shoulders, upon which, on close examination, will be found a fully developed, though very diminutive, hand: this part being the first portion of the extremities formed, and then, as it were, pushed out from the trunk, as the adjacent portions of the arm are being successively formed behind it. The same succession takes place in the formation of the lower extremities. The foot is first formed upon the lower portions of the main trunk, and pushed out, as it were, in the same manner as the hand and arms, until the prescribed length is attained.

Next the nose, mouth, ears, and external organs of generation are formed, and the miniature human being soon, by its motions, gives unquestionable evidence of the life that is within it.

The whole, having now passed from embryo to fœtus, goes on maturing, obtaining sustenance from

its parent through the mediums before pointed out, until it is prepared to subsist upon almost the same material, though presented to it in a different form and received by it through different channels, when it shall have been ushered into this life, which "is made up of such stuff as dreams are made of, and bounded only by a sleep," where, after a brief existence, in which it was intended should be received that manna which cometh down from heaven, to fit it for the life that is to come.

"The life of man has a thousand springs,
And dies if one be gone;
'Tis strange that a harp of a thousand strings
Should keep in tune so long."

DIMENSIONS OF THE FÆTUS.

The ovum exists before impregnation. It is called embryo until the third month, after which fœtus whilst it remains in the womb, and child or infant after delivery.

About the third week it is from two to four lines in length, and weighs about two grains. In color it is of a grayish white, and of a gelatinous consistency. Its shape is oblong, and curved forwards. The head appears as a small pimple, separated from the body by a little notch. The abdominal cavity is open, beyond which can be seen the heart, with one auricle and ventricle.

Fifth week. The eyes are seen as two dark specks in the head, which has greatly increased in size, and the upper extremities begin to appear like two teats;

the lower as two pimples. The vertebræ can now also be distinguished; lungs seen as five lobules; weight, fifteen grains; length, two-thirds of an inch.

Seventh week. Ossification seen in clavicle and lower jaw; kidneys begin to appear; the intestines extend into cord; the anus closed; length of embryo one inch.

Second month. Organs of generation appear; eyes not covered by lids; the head comprises one third of the whole mass; nose, with nostrils separated, appears; mouth open; forearm and hand visible; embryo one and a half to two inches in length; weight, six drachms.

Tenth week. Eyelids cover the eyes; walls of chest seen, behind which the heart disappears; fingers appear, though webbed; lips developed; length of embryo, two and a half inches; weight, about one ounce.

Third month. Eyeballs distinguished through the lids; sex apparent; the nails appear; skin of a rosy hue; length, six to seven inches; weight, three or four ounces.

Fourth month. It is now *fætus*; fontanelles and sutures large; hair appears; tongue and chin well defined; down seen upon skin; some motion; quickening; length, six or eight inches; weight, seven or eight ounces.

Fifth month. Continues maturing; weight, eight or eleven ounces; length, nine or ten inches.

Sixth month. Hair longer and thicker; scrotum small, empty, and red; nails heavier; weight, one pound; length, eleven to twelve and a half inches.

Seventh month. Descent of testicle begins; eye-

lids partly open ; all parts more fully developed. It is now about fourteen inches in length.

Eighth month. Weight, four or five pounds ; length, sixteen or eighteen inches.

Ninth month. Full term. Length, eighteen to twenty-two or twenty-four inches ; average weight, six to eight pounds, though sometimes ten, twelve, and even fourteen or fifteen, according to some accoucheurs.

The secretion of bile begins at about the fifth month, and continues. The bladder is seldom or never filled with urine at birth ; consequently there is no passage of water for several hours afterwards in most cases.

THE INDICATIONS OF FULL DEVELOPMENT are ability to cry ; quick motion ; mouth, nostrils, ears, and eyelids open ; hair, eyebrows, and nails developed ; body's color clear red and warm ; ability to suck ; and the discharge of meconium shortly after birth.

THE INDICATIONS OF IMMATURITY are feeble motions ; small size ; great redness of skin, with streaks of blue ; down only upon the head ; bones soft ; nails not formed ; eyelids, mouth, and nostrils closed ; inability to suck.

The above are important in a medico-legal point of view, and for that reason principally are detailed here, and should receive careful consideration from the legal as well as the medical student. Of course the weight and dimensions may vary some little in different individuals, but the above are the average, culled from different authors, and may be generally relied upon.

THE PERIOD OF GESTATION.

The whole period of gestation occupies about two hundred and eighty days, or ten lunar months, or forty weeks. There is no certainty as to the exact period, as one may go from one to two weeks beyond this, whilst others may not unfrequently require even less time; but this variation can be partly accounted for by considering the exact time between the catamenial periods that conception takes place. Thus, if impregnation occurs immediately after the menses have ceased, the womb will have attained such a state of dilatation and weight of contents by the time the ninth catamenial period approaches as to be unable to pass through the usual excitement peculiar to it, without contracting and expelling its contents. On the other hand, if the conception has taken place immediately before the expected menstrual period, as contended by some it may, the womb may pass through the ninth and go to the tenth period before it gives out its contents. But these variations may sometimes depend upon the state of development the uterus has attained, together with the weight and size of its contents, and the degree of sensibility peculiar to itself or the individual possessing it. The surest method is to compute from a time immediately between the menstrual periods, which in either case will not be far out of the way; or a very correct computation may be arrived at by counting from the time of *quicken- ing*, which, as has already been shown, takes place in about four and a half months. For convenience the following table is annexed, which explains itself:

Calendar for Calculating the Period of Gestation.

Nine Calendar Months.		Days.	Ten Lunar M'ths.	Days.
From	To		To	
January.....1	September...30	273	October7	280
February.....1	October.....31	273	November7	280
March.....1	November...30	275	December5	280
April.....1	December...31	275	January5	280
May.....1	January31	276	February4	280
June.....1	February ...28	273	March.....7	280
July.....1	March.....31	274	April.....6	280
August.....1	April.....30	273	May.....7	280
September....1	May.....31	273	June.....7	280
October.....1	June.....30	273	July.....7	280
November....1	July.....31	273	August.....7	280
December.....1	August.....31	274	September.....6	280

According to the above table, if a patient cease to menstruate July 1st, at the earliest, her confinement may be expected about March 31st, the end of nine calendar months, or, at the latest, April 6th, the end of ten lunar months; or, if she cease to menstruate the 15th or 20th of the same or any other month, the time may be found by adding the date to the figures opposite in the second column.

FÆTAL CIRCULATION.

A knowledge of this process, though not essential to the study of midwifery, is here detailed for general instruction, and may not prove uninteresting at this point to the miscellaneous reader, and for the benefit of those who may be in quest of information upon the subject. It will be better understood by a brief description of the circulation in general, or as it occurs in the perfectly formed adult. In 1619,

sixty-six years after its probability had been intimated in France, Wm. Harvey demonstrated the fact of this now well-known phenomenon.

The female *heart* usually weighs about nine ounces, and is considered, as a general circumstance, to be about the size, in its natural state, of the closed hand of the individual to whom it belongs. It is cone-shaped, though a little flattened, with its apex downwards, and contains four cavities, *two upper* and *two lower*. The former are called *auricles*, right and left, according to their position on either side; the latter *ventricles*, and designated according to position, as in the former instance.

The right auricle receives the venous blood, or that which has served to nourish the system, through the large vessels, called the *venæ cavæ*, or large veins; one receiving the blood from the lower extremity, the other from the upper portion of the body—*ascendens* and *descendens*—into which all the veins of the body converge and terminate. The auricle, through these channels, being now filled, contracts and presses the blood into the right ventricle, which, in its turn, contracts and forces the blood through the lungs by means of the *pulmonary artery*. Here the blood parts with its carbon and receives oxygen, by being brought in contact with the air drawn into the lungs during respiration, which purifies and changes its color at the same time from its previously dark to a bright red hue. It is now *arterial*—before it was *venous*—and is ready to be sent out to build up, exhilarate, and nourish the body. For this purpose it passes through the *pulmonary vein* into the left auricle; thence into the left ventricle;

from whence it is forced out through the whole system upon the errand just indicated.

The cavities of the heart are estimated to hold about two fluid ounces. It is supposed that the ventricles do not discharge the whole of their contents at each contraction, consequently they would probably not give out more than one ounce and a half. Now, if seventy-five contractions take place in a minute, there would be one hundred and twelve ounces, or seven pounds of blood, pass through the heart in that time. The quantity of blood in the human body is estimated to be about one-fifth of its weight, or twenty-eight pounds, in a person weighing one hundred and forty pounds. This quantity would, therefore, pass through the heart once in four minutes, and would circulate about fifteen or twenty times in an hour, and propelled with a force sufficient to sustain a column of blood seven and a half feet high, weighing about four pounds six ounces. The number of contractions, with which the pulse at the wrist corresponds, varies in a good constitution from seventy to seventy-five in a minute. They diminish in frequency from the beginning to the end of life. So that it may be truly said that we begin to die from the moment we enter into this life. Just after birth the pulsations are about one hundred and forty to one hundred and thirty; in the prime of life, seventy to seventy-five; and in old age they range from sixty to fifty, and even down to forty per minute. They are more frequent in the female than the male, and are influenced by temperment, emotions, and exertions; they are more frequent in the morning than at night, and are accelerated by inflammations and

fevers. In the decline of the vital powers they are frequent but feeble; in nervous diseases with depression they become very slow and soft. With the above general remarks in reference to the circulation in the adult, we now return to the *foetal circulation*.

It will be borne in mind, whilst speaking of the placenta, it was stated that it was the medium through which, and the cord, the foetus received nourishment from the parent; therefore this will be the most convenient point from which to trace the route of circulation.

The newly ærated or arterial blood of the mother is taken up by the placenta and collected in the umbilical vein, and carried through it to the umbilicus of the child, where, passing through the abdominal walls into the cavity, it divides, one part going to the liver through the vessel called the *vena porta*, the other continuing on through the *venous duct* to the ascending *vena cava*, where its contents mingle with the blood from the lower extremities; and now, ascending still higher, the blood that was sent to the liver, and collected by the hepatic or liver veins, is received into it and carried on to the right auricle of the foetal heart, where the ascending cava empties or terminates. Just here is where the great difference in the course of the blood exists from that of the adult. In the latter, it will be borne in mind, the blood passed from the *auricle* to the *ventricle* of the right side. In the foetus there is an opening between the two auricles, termed the *foramen ovale*, in which is a valvular arrangement called the *eustachian valve*. Through this the blood now passes into the left auricle, then into the left ventricle, from which it

passes through the aorta, to be distributed to the foetal system at large. That portion of blood distributed to the head is collected by the *descending* vena cava, which enters with the *ascending* cava into the right auricle. A portion only of the blood passes into the right ventricle. This is carried through an artery, the *ductus arteriosus*, into the arch of the aorta, where, mingling with that coming from the left ventricle, they together pass on to the common *iliac* arteries, into which the aorta divides itself, and these again subdivide into the internal and external iliacs. Through the former of these, now the umbilical arteries, the blood is returned to the placenta. It will be observed that the order of circulation in the foetus is the reverse of that in the adult. In the former the veins carry arterial blood, and the arteries venous blood. The liver of the foetus is the only organ that directly receives arterial blood from the placenta, in the distribution to all other organs and the system generally: it is mixed arterial and venous blood. Just previous to birth, but sometimes not until afterwards, the foramen ovale becomes closed; the ductus venosus and arteriosus shrivel away, and the circulation is prepared to enter upon its wonted course, the pulmonary artery and vein having now become sufficiently developed to admit the flow of the increased current of blood through the lungs, which also now perform their natural functions by the air being admitted into them. Sometimes, from some cause, the foramen ovale is not entirely closed, and the venous blood, in part, continues to escape into the left auricle, and soon gives rise to a fatal condition called *cyanosis*, or blue skin, in the infant.

PATHOLOGY OF THE FŒTUS, AND SIGNS OF ITS DEATH.

The fœtus in utero is liable to many of the diseases that may attack the child after birth, especially *inflammation of the brain and its coverings*; the *lungs, its substance and lining membrane and covering*; the *pleura*; the *peritoneum and mucous membrane* of the bowels; besides other conditions—such as general *atrophy* or *hypertrophy*, *syphilis*, *dropsy*, *jaundice*, *hernia*, *caries*, *ulceration* of the bones; *necrosis*, *mortification* of the bones, and *rickets*, *softening* of the bones; or it may participate in any acute diseases which attack the parent, none of which can hardly be discovered or treated during uterine life.

The general indications of its death are a continued cessation of the fœtal heart, which can only be ascertained by auscultation, (*i. e.*, by applying the ear or stethoscope to the abdomen,) or the cessation of the movements of the child, previously felt by the parent; which condition is usually accompanied with a sense of weight in the abdomen, a decrease in the size of its tumor, and a rolling about of the now dead weight as the patient turns from side to side in the horizontal position. At the same time the breasts become soft and flabby, after having been full and tense; all of which symptoms, singly or combined, if attended with an alteration of health, may generally be relied upon as certain criteria of fœtal death.

The signs of death during labor are more evident and easier detected. The celebrated Dr. Rigby intimates that the loose, flabby scalp, with a sharpness

and grating together of the edges of the cranial bones, are certain signs of death.

In face presentations the lips are flaccid, the tongue flabby, cold, and motionless. In breech presentations the anus will be found relaxed, cold, and insensible. In presentations of the arm the limb is cold, livid, and flabby. If the child has been dead some time the skin will easily peel off by slight pressure. All or either of these conditions manifesting themselves, accompanied with a foetid liquor—amni—during labor, can be relied upon as certain evidence of the death of the foetus.

ABORTION AND PREMATURE EXPULSION OF THE FŒTUS.

When from any cause the foetus is expelled from the womb before it is sufficiently developed to maintain a separate existence, which at least is not until the seventh month of uterine life, it is called *aborting* or *abortion*. If it occur after the seventh month, the child being considered viable, (or capable of independent existence,) at this period it is technically denominated *premature expulsion*.

Its occurring under either of the above circumstances may be the result of *natural*, *accidental*, or *intentional* causes. Enumerated among the first of these may be an over sensitive condition of the uterus, peculiar to some females, by which there is not a sufficient tonicity of the organ to carry the foetus beyond a certain period, and they habitually abort or miscarry at any time between the third and seventh month; but it may occur sometimes

before the first-mentioned period, resulting from the frailty of the connection at that early period between the ovum and decidua, before spoken of, (see Generation,) and may be easily separated by any unusual mental excitement—such as excessive anger, joy, fear, sorrow, or great depression of spirits from any cause. These exciting causes cannot apply to those referred to above who habitually miscarry at the seventh month, as it may occur to them without any apparent cause or premonition about this period, except that already mentioned, as what may be termed a constitutional idiosyncrasy. The accidental causes may be falls, blows, or undue exercise, either in walking, dancing, or jumping, or swinging by the arms, or great straining, as in dysentery and diarrhea. The intentional causes—it is with shame for our species that we chronicle the fact that there are such—may result from the introduction of instruments into the mouth of the womb and rupturing the ovum, or by the administration of emmenagogues—such as saffron, ergot, pulegi, aloes, and some of the preparations of iron, which act either directly by destroying the life of the child or by causing an effusion of blood between the placenta and womb, producing thereby a separation between them, thus arresting nutrition and respiration, from which death sooner or later results to the fœtus, and consequently its expulsion must ere long follow.

Abortion originating in any of these causes, more especially the latter, or intentional, are always attended with great danger to the woman, either from the hemorrhage that is apt to follow, or from inflammation of the womb.

The *symptoms* that present themselves, when a woman is about to miscarry, are pains in the back and lower part of the abdomen, accompanied with languor, general uneasiness, and sometimes considerable hemorrhage, followed by severe expulsive pains, even more so, frequently, than those present in labor at full time.

Treatment. Acting upon the supposition that the child is still alive, the indications are to arrest, if possible, the uterine action, that the woman may go on to complete the pregnancy at full time. If to accomplish this is evidently hopeless, it will then be necessary to hasten the delivery, in order to limit the hemorrhage to as small an extent as possible. The first is met with rest in the horizontal position, cold wet napkins to the vulva, anodyne injections, and the internal administration of opium.

Take deodorized tincture of opium..... 1 drachm.

camphor water..... 1 ounce.

Mix, and give a teaspoonful every 2 or 3 hours.

In case of much hemorrhage occurring,

Take sugar of lead..... 15 grains.

pulverized opium..... 1 “

Mix, and divide into 6 pills; one to be given every 4 hours.

If the above fail to arrest the bleeding, ice and the tampon, or plug, may be inserted into the vagina, and allowed to remain sometime, the patient still lying down, when, after a while, in eight or a less number of hours, it may be withdrawn, when the ovum will probably be found adherent to it with the coagulum. After the contents are expelled, the womb, by its own

contractions, will usually arrest the flow of blood. To those who habitually abort, it is advised, when conception has occurred, to scrupulously avoid all excitement, either of mind or body, and by all means abstain from over-indulgence of appetite in food or stimulants, riding either in cars or in carriages, and from purgative medicines. It is well to secure good rest at night, by taking a *few* drops (ten or fifteen) of laudanum at bedtime, or by an injection of a small teaspoonful of the same in about four ounces of thin starch-water; or what will probably act better in the same quantities is the solution of the *bimeconite of morphia*. The above directions, if strictly complied with, will generally prove efficient as preventives.

It is useless for us to attempt any evasion of the fact of the frequency of premeditated abortions occurring in some parts of this country among otherwise honorable, high-minded, and respectable married people, such, perhaps, in some instances, as would not knowingly take the life of the most insignificant insect that crawls beneath their feet, yet who, in this respect, seemingly, have no conscientious scruples whatever, neither in regard to the enormity of the crime, nor the least consideration of the dire effects that may result to themselves physically therefrom. Consequently, we have added to the other classifications what we term intentional causes of abortion. It is vain, however, to merely speak of this abominable custom—for such it really seems to have grown to be—without offering a remedy for its total abolition. Unfortunately, in these cases, we have none to propose that may prove successful, save only that

which may result from the reassurance of the truth, as stated above, in regard to its criminality and enervating effects upon the individual. After a knowledge of which, if persevered in, it is only a question of *sin, pain, long suffering*, and not unfrequently premature death, to mother as well as fœtus. In either case, then, it is murder, "foul and most unnatural murder;" for, as has already been shown, (see *Generation*,) from the very moment in which fecundation takes place the ovum is a living human being, depending upon its parent for subsistence necessary to its growth and development, as much so as at a more advanced stage of uterine life, or when, after being born, it draws nutriment from its mother's breast. We have never seen or known of a case yet, no matter how much the party apparently detested having children, where any sane woman—save in very rare instances, among the most abandoned, and even then we doubt very much their sanity—where a woman would consent to the killing of her infant; on the contrary, we think such an idea would be contemplated with horror and abhorrence of themselves, or any who would have the temerity to advance such a proposition. By submitting to an abortion, at the very least calculation the chances are, if not fatal to the mother, that the organs concerned will become so affected as to visit upon the party, as has already been intimated, such pain and suffering, compared with which the bearing, nursing, and raising of children were indeed an elysium.

Let our women but ponder upon these facts, and the reprehensible practice must needs be speedily abandoned, or confined only to the reckless, heart-

less, and criminal. There is no doubt that many who submit to this practice do so innocently, believing it no violation of moral or physical laws at the beginning of gestation. Certainly, after what has been above shown to be the facts in the premises, any of this class who read their condemnation in these pages must be saved from further criminality; for if it was not before, now that they know the truth, to them it is a sin, in open and direct violation of the law divine that was thundered from Sinai amidst fire and smoke, which says "Thou shalt not kill." The operations of the other classes may be entirely prevented or considerably abridged by the proper officers of the civil law in our cities and towns frequently visiting and inquiring into the nature of those establishments where the public are informed, through the medium of some newspapers, that this diabolical practice is unblushingly carried on.

FERTILITY AND STERILITY, OR BARRENNESS.

Marriage is a divine institution, and was ordained by the Great Jehovah himself, recognized and patronized by the Son of Man in his day, and commended by the great Apostle of the Gentiles, who said unto the Corinthians, "Let every man have his own wife, and let every woman have her own husband. Let the husband render unto the wife due benevolence: and likewise also the wife unto the husband." "And unto the married I command, yet not I, but the Lord, Let not the wife depart from her husband." And thus to the Hebrews: "Marriage is honorable in all,

and the bed undefiled; but whoremongers and adulterers God will judge."

It was originally instituted as a legitimate means of perpetuating the race of man; wherefore it should not be entered into without due deliberation and mature consideration of all the circumstances which may render it a blessing or a curse to the parties engaging in it. To view it as a mere civil contract, to be violated by either party with impunity upon the merest pretext, as it seems has grown to be the custom in our day, is one of the greatest evils of the times, and to this fact may be traced the evident degeneracy and demoralization of so many of our young men and women. But to follow out this train of thought would carry us into a wondrous metaphysical maze, far beyond the confines of the object in view, as contemplated in the beginning of this article; consequently we must rein in our pegasus, and tread in the physical and sublunary ruts of the subject before us.

It has already been shown, under the head of Generation, that actual contact of ovum and spermatozoa are essential in order to a reproduction of the human species, and that man, proud man, the paragon of animals, begins life a mere spee; a small vesicle filled with fluid; a simple cell; a monad. The part performed by male and female, looking to this union, is too well known to require details, though the ultimate mode of transmutation or assimilation of the elements of the to-be offspring is not so easily understood. But one fact is apparent: so important is the occasion in which the ejaculation of the semen takes place, that, as Borden says, "it seems at this moment as if nature

had forgotten every other function, and is occupied only in collecting its strength and directing it to the same organs," *i. e.*, those engaged in forming the new being. It is held by some that upon the spirit which animates the contestants upon such an occasion, and the position they assume, depends the power, to a great extent, of producing an offspring, as well as to determine its sex, model its form, and mold its features. Consequently each of these, except the latter, which are deemed irrational, in turn will receive due consideration at a subsequent period of what may be remarked upon this subject.

Probably no theme could be of more interest to females than the present; for, next to self-abuse and excessive indulgence in connubial privileges, there is nothing so fatal to health and longevity as child-bearing at brief intervals. Besides the shock to the system generally resulting from frequent labors, the wear and tear of body from nursing, the anxiety of mind, sleeplessness, and the loss of appetite occasioned thereby, all combined, soon change the well and full-developed healthy wife into a weak, nervous, debilitated, helpless mother. These facts indicate such a course to be as contrary and as much an abuse of nature as those before alluded to.

Therefore, to those who may have experienced the debilitating effects dependent upon the cause last mentioned, and who believe themselves incapable of restraining their desires within reasonable bounds, a few words of advice are offered, which, if heeded, will be attended, in most instances, with the most favorable and desirable consequences, and neither compromise their conscience nor prevent a judicious

indulgence in connubial intercourse. The most favorable position during coition for conception is that most natural, or of the female being most prone. It necessarily follows, then, that the reverse of this, or that of the male being inferior, is one step unfavorable to such an end.

These facts borne in mind, with another, now generally recognized to be such among physiologists, that a female is more liable to become impregnated within a period of ten or twelve days just subsequent to the menstrual flow, the probabilities are, other things being equal, that the desire to conceive or not to conceive can be regulated at will, and connubial commerce indulged with or without having in view fruitful results of the coitus. When fecundation does take place after the above-mentioned number of days, and previous to the next menstrual period, as contended that it does in some instances by Hibbard, it is supposed that it is from the spermatozoa having found its way into the uterine cavity, where it lies dormant in some of the fissures of the excavation until discovered by the next ovum discharged. It is upon this hypothesis that the variations in the period of gestation is also accounted for, and, according to the same authority (Hibbard) that the difference of sex depends: he maintaining that, conception occurring just before the menstrual period, the offspring would be a male; if afterwards, a female child. Others contend that such is not the case, and that the sex of child depends upon the position assumed by the female during the veneral congress, *i. e.*, whether she lies upon the right or left side. These argue that the right ovary produces male and

the left female children. The fact that twins of both sexes frequently result from ova of the same side seems to be fatal to this theory, and Hibbard, it is believed, stands alone and unsupported in his own. These facts, as well as the failure of so many acting upon such advice to have their expectations realized, are enough to consign them to oblivion. However, to those who wish to experiment in such matters we would offer no barrier, but let all try for themselves. Undoubtedly each has been successful in some instances at least, or else it is thought they would not have such ardent supporters. The Chevalier V. Mondat, who made the study of this subject and sterility a specialty, believes the sex depends upon the force with which the *danæan** shower is thrown upon the orifice of the womb, and the vigor with which it is received and drawn in by the suctional action he attributes to that organ. Quetelet and M. Hofæker believe that where the difference of age in either parent amounts to eight, ten, or more years, the sex of child will be governed thereby, *i. e.*, male, if the preponderance of age is on the father's side; female, if it is on the side of the mother. There may be and are exceptions to this; but in general it will be found the more correct theory.

The next branch of our subject will require a partial review of what has already been said above in relation to the period at which the female is most liable to become impregnated. Of course this liability presumes the female to be *regular*, by which term is already understood the monthly flow occurring

* From Danæ, the daughter of King Æcrisius of Argos, seduced by Jupiter in the form of a golden shower.

in females, resulting from the discharge of an ovum into the cavity of the womb; for it is very generally conceded that a woman who does not menstruate will not conceive, and a cessation of the monthly discharge in one who has been regular is received as one of the first indications that conception has taken place, other things being equal. Menstruation in the human female is no doubt analogous to that condition which takes place in some of the lower animals, commonly known as *heat* in the *cat* and *dog*. This phenomenon occurs only two or three times annually in *rabbits*, but in the domestic fowl more frequently; whilst in the *cow*, *horse*, *deer*, *elephant*, and some *birds* it appears but once a year. From the fact that these animals more readily conceive at these periods, we may reasonably infer that the human female is more apt to become impregnated within about ten days just subsequent to the menstrual discharge. This fact seemingly harmonizes with the provision of nature which makes the female more amorous during this interval, and more desirous of entertaining the opposite sex in actual venereal intercourse. It is not absolutely necessary, however, for the woman to partake of pleasure to be productive; as is evinced by some females having children who never experience the least excitement during coition, and who receive the embraces of their husbands in an entirely passive manner. This condition or coldness may be the result of a natural indifference on the part of the female, or the destruction of sexual appetite from excessive elitorism, an abuse of themselves to which some of the sex are unfortunately addicted. There are many instances where contin-

ual sexual intercourse for years has not resulted in fecundity in females every way competent to conceive, who, having acted upon the intimation above given by advice of their physician, were fully rewarded with abundant-fruition for their pains. One case is worthy of note, no less on account of the prominence of the individuals concerned, than as illustrating the sapiency of the physician advising it at a period so remote from the present time. Ferrel informs us that Henry II and Queen Catherine of France, acting upon his advice in this particular, were rewarded with an heir after eleven years' barrenness on her part.

Continued indulgence in clitorism, before alluded to, besides destroying sexual desire, also vitiates the whole system, and thereby affects the ovaries, so that the ovum discharged is void of any fructifying power. A similar condition may result in man from excessive masturbation, though in his case, besides destroying the awakening power of the spermatozoa, it renders him impotent from inability to produce an erection of the hitherto virile member.

The clitoris, it will be borne in mind, was spoken of in the anatomical portion of this work as being analogous to the male penis. This organ may be congenitally, or from continued excitement, so enlarged as to interfere seriously with copulation, and thereby become a cause of sterility. A case has been related by Mondat and others of a Roman soldier, whose caresses could awaken no excitement in his mistress, and who was consequently barren. On one occasion he came upon her suddenly whilst engaged in this self-gratification, and, being enraged at the

sight, drew his sword and amputated without ceremony what he discovered afterwards had been the destroyer of his former pleasure and happiness, as well as having been the cause of her barrenness; for the operation was productive of all he desired in both of these respects.

HYTOSPADIAS AND EPISPADIAS.—These may be causes of sterility in the male. It is an abnormal condition of the penis, in which the urethra opens upon the member somewhat back of the corona, underneath in the first, and on the upper portion in the second instance, instead of, as usual, at the apex of the glans, and, as a matter of course, whilst the veneral congress might be enjoyed, the semen would be discharged in the lower part of or even exterior to the vagina; in either of which instances the spermatozoa could not find its way into the womb.

ENLARGED NYMPHÆ.—These members sometimes may be so much enlarged as to prevent the accomplishment of sexual intercourse.

IMPERFORATE HYMEN, spoken of in amenorrhœa, as an impediment to the menstrual discharge, is also a cause of barrenness.

SPASM OF THE VAGINA.—This is an extremely sensitive condition of the vagina, in which it becomes violently and compactly contracted, from the mere touch of the penis or any other instrument, so as to preclude its entrance therein. Whilst such a condition lasts, it is obviously a cause of sterility.

VAGINAL FISTULA.—The vagina may terminate in the rectum or bladder, in which case all attempts at fecundity must necessarily prove abortive, from the semen finding its way into one or both of these

channels instead of the womb. Mondat mentions a case of this kind which came under his care. Upon examination with the speculum he found the womb perfect, with the exception that its orifice was in the direction of the axis of the rectum. The woman, though married several years, had been barren, and, by his advice, sexual intercourse was attempted through this organ, (the rectum.) The result was she became pregnant, and at full time was delivered of a child; not, however, without requiring, as he remarks, the dividing of the *sphincter ani* muscle.

ANTEVERSION, RETROVERSION, and ANTEFLEXION of the womb—conditions which have already been considered in another part of this work—as well as AMENORRHŒA, MENORRHAGIA, DYSMENORRHŒA, LEUCORRHŒA, and PROLAPSUS UTERI, all of which have been duly mentioned under their proper heads, may be causes of sterility.

Treatment.—For the purpose first considered the object is and has been to make known the laws of nature in this regard, in order to present, as far as may be, a perfectly legitimate means of husbanding the strength of the parents, and prevent the mother especially, who has to bear the heat and brunt of the burden, from experiencing the consequences before indicated, which must inevitably ensue from a continued succession of labors without a prudent interval of repose. This we believe we have done in a manner to satisfy the conscientious scruples of the most sensitive and fastidious in relation to such matters. For this purpose we could not and would not advise the use of various appliances called preventives, used in sexual intercourse by many, but have

chosen rather to point out the method provided by Nature herself; for in this, as in all other instances, if her laws be carefully observed, it will be found that she offers a safeguard against abnormal abuse, or, it may be said, attempts at evasion of the same.

The treatment of sterility in either sex may be considered under three heads, viz: Moral, Medical, and Surgical.

The cases requiring moral treatment are those originating in self-abuse, causing general debility, and an entire prostration of the virile organs and a vitiation of the ovum and seminal fluid. The first step in this direction, then, is to cease the abominable practice, and endeavor to keep the mind engaged and interested in moral pursuits, seek cheerful society, shun bad company, and especially immoral books. Probably to the perusal of this kind of literature more than any other cause many young men and maidens owe the forfeiture of their health, innocence, and happiness, by having their sexual appetites excited to an uncontrollable degree. Dante, in his imaginary journey through perdition, so appropriately and delicately describes an instance of this kind in the fallen Francesca, who, with her lover, Paolo, were put to death for adultery, that we cannot refrain from quoting it here: Upon his questioning her as to the cause of her sin, she is made to say:

“One day,

For our delight, we read of Lancelot;
How him love thrall'd. Alone we were, and no
Suspicion near us. Oftimes by that reading
Our eyes were drawn together, and the hue
Fled from our altered cheek. But at one point

Alone we fell. * * * *
 The *book and writer both*
 Were GUILT's *purveyors*. In its leaves that day
 We read no more."

Young man or young woman, you thus behold how you risk your innocency in perusing corrupt books, or, what may be considered equally as bad, keeping evil company. For remember that

"Vice is a monster of so frightful mien,
 As to be hated needs but to be seen;
 Yet *seen too oft*, familiar with her face,
 We first endure, then pity, then embrace."

The *medical treatment* of sterility, when dependent upon *amenorrhœa*, *menorrhagia*, *dismenorrhœa*, *leucorrhœa*, *anteversion*, *retroversion*, and *prolapsus uteri*, has been pointed out under the respective heads of these subjects in another part of this work

When there is a loss of vitality in the genitals, dependent upon general debility, in addition to the moral regimen recommended above, baths, sufficient and regular out-door exercise, with a course of tonics, with iron, and nutritious diet, will, in most instances, if persevered in, result in a perfect cure to either sex.

The following may be given to restore tone to the genitals and the system generally:

Take Vallet's (ferruginous mass) iron.....	24	grains.
extract of gentian.....	12	"
extract of pulegi, (pennyroyal).....	6	"
extract of dulcamara, (bittersweet)....	4	"
extract of lactuca, (lettuce).....	6	"
pulverized cantharides	1	"

Mix, and divide into 12 pills. Take one 3 times a day, an hour before meals; to be followed in about an hour after meals

with diluted phosphorous acid—about 20 drops in a wineglassful of water. It should be well stirred, and sucked through a glass tube.

Or,

Take muriated tincture of iron.....	$\frac{1}{2}$ ounce.	
fluid extract of ginseng.....	} of each 2 oz.	
fluid extract of taraxicum.....		
fluid extract of sarsaparilla.....		
fennel water.....		
pulverized chlorate of potassa.....	2 scruples.	

Mix. Shake well. Dose, a dessertspoonful 3 times a day after meals.

The following proportion of phosphorous, as prescribed by Mondat, may be used in some cases no doubt with happy results, though the dose is much larger than is generally used in this country:

Take essence of rosemary..... 1 ounce.
phosphorous..... 12 grains.

Mix, and hold over lamp until the phosphorous is dissolved, and whilst warm add 1 ounce of oil of sweet almonds. Take teaspoonful 3 or 4 times a day.

He also considers *benzoin*, *ginseng*, *boron*, and *ambergris* potent remedies under such circumstances. As antaphrodisiacs, or medicines to subdue and control the animal desires, bromide of potassium, camphor, and peppermint may be used. Oysters and asparagus will be found excellent aphrodisiac dietetics.

Spasm of the vagina may be treated with injections of tepid water, after which belladonna ointment is to be applied for several days. A fly-blister to the perineum, and the internal administration of tincture of cantharides two drachms, with six drachms of muriated tincture of iron, of which twenty to thirty drops may be given in water three or four times a day.

The conditions requiring surgical treatment are *hypospadias*, *epispadias*, *phimosis*, and *paraphimosis* in the male; enlarged nymphæ and clitoris, imperforate hymen, and vaginal fistulas in the female.

The manner of performing these operations can be found fully described in any respectable work on surgery, to which the reader is referred who may desire to become further enlightened upon the subject; in taking leave of which we would say to the reader, in the language of Cawthorn,

“Pleasure, my friend, on this side folly lies;
It may be vig’rous, but it must be wise;
And when our organs once that end attain,
Each step beyond it is a step to pain.”

PREGNANCY: ITS PHENOMENA AND TREATMENT.

Fecundation having taken place in the female, the first thing that leads her to suspect the situation is the non-appearance of the menstrual discharge when the time for it shall have arrived; but if impregnation has taken place immediately after the menstrual period, other indications may present themselves in the intervening space of time, such as slight nervousness in some, with an irritable or unusually sensitive condition of the stomach, or an uncomfortable feeling of fullness in the abdomen, morning sickness, *i. e.*, nausea and vomiting upon rising to enter upon the duties of the day, all of which prepare her to expect, when the usual time has arrived for the discharge, that it may not occur; when, according to the circumstances of the case, she is full of rejoicings at the pros-

pect before her, or sad and depressed at the unhappy change her indulgence has wrought. That this last condition should obtain, alas, is too often the case of late, and we chronicle the fact with sorrow and regret: sorrow, that the holy alliance of matrimony should be entered into for any other purpose than that for which it was ordained, the perpetuation of our race, and regret that its offices should be so often perverted to mere sensual indulgence; for it is to this mostly that may be attributed the many separations that take place between husband and wife, which our courts are invoked by their decrees to confirm. The slave to passion, the worshiper at the shrine of pleasure, soon becomes surfeited with lust, and "the appetite may sicken, and so die," whilst the unsuspecting dame or unwary swain too late realize that their cup of bliss, but now "full to the brim, without running over full," has been suddenly drained to the dregs, and either of the twain is now left to drag out a miserable existence in tribulation and distress, whilst it may be that their Venus or Adonis, in seeking other sources to make new conquests, are unceasing and unwearied, forgetting the while that—

"Like leaves on trees the race of man is found,
Now green in youth, now withering on the ground,
Each year a new generation supplies,
They fall successive, and successive rise"—

and that, as surely as their physical powers will visit upon them the consequences of the violation of the natural laws, so will the Creator of all hold them responsible for their temerity in usurping the law divine.

But to return to the changes remarked previous to this digression. They continue more or less aggravated, according to temperament and idiosyncrasies of the individual, for sometime, until other manifestations of a physical character begin to present themselves. There is considerable nausea and vomiting, especially upon rising, from which circumstance it is termed morning sickness. The breasts now become enlarged and tender, the nipples more prominent, and beginning to be surrounded by a dark circle. The abdomen is now more flattened, caused by the womb sinking lower in the pelvis from its increased size and weight, the mouth of which may be felt within a short distance from the external labia of the vagina, where it will be found soft, round, and regular in those who have not borne children, (*primipare*,) whilst in those that have (*multipare*) it is somewhat irregular in its circumference, and more or less open. The above symptoms and signs, having set in during the first month, extend into the third and fourth, with other more manifest accessions. A condition called *ptyalism*, or an increased flow of saliva, may take place about this time in some, and continue during the whole period of pregnancy; also *anorexia*, (loss of appetite,) whilst a substance called *kiesteine* will likely be found voided with the urine. If the latter is allowed to stand sometime, it will be found floating upon its surface in globules, like the fat upon soup after it is allowed to cool, and exhaling an odor similar to that of cheese. Kiesteine may at other times be found in the urine, but it is estimated to be present about ninety-five times in a hundred in pregnancy, and is considered by some, in the absence of

any other signs, as a sure evidence of that condition existing. Hence its name, from Greek, *kuein*, "to be pregnant," and *esthes*, "a garment or pellicle."

If the mouth of the womb is now examined, it will be found somewhat elevated, more soft and pliable than before, though still closed in *primipare* and open in *multipare*. The fundus, now enlarged, begins to manifest itself outwardly, by a small tumor presenting itself upon the abdomen just above the mons veneris, a circumstance which produces a corresponding depression about the navel. It is about the latter part of this period, or the middle of the fifth month, that the fœtus gives sure evidence of vitality by its movements, before spoken of, and known as "*quickening*." About this time the nausea and vomiting usually cease, though either may continue to a greater or lesser extent through the whole course of gestation in some, and not occur at all in others.

During the remainder of the fifth and sixth months the abdominal tumor becomes increased, the movements of the fœtus more active, the circle around the nipples darker and more enlarged; the os continues closed in *primipare*, but in *multipare* open wide enough to admit the extremity of the index finger.

If desirable, or should any doubt exist as to the true condition, the process called *ballottement* may at this time be successfully practiced. It is performed by placing the patient in the erect position, and, by putting one hand upon the abdomen, over the fundus of the womb, to steady it, then with the index finger of the other introduced into the vagina and continued gently upwards until the neck of the uterus has been reached, then, by a sudden gentle

jerking of the finger upwards, a sensation of something rising and presently settling down again will be felt. It is the fœtus, which, from the impulse given, rises in the liquor amnii, and after a moment falls to its former position. This can only be done successfully about this period of pregnancy, as the fœtus soon afterwards becomes too much enlarged to admit of the up-and-down motion. In the seventh and eighth month the maternal abdomen becomes much increased in size, the navel pouting, the areola or dark circle around the nipples, now very prominent, is more discolored, and milk in some cases so abundant as to drip or even to spurt from the *mammæ*, or breasts, to such an extent as to require the constant use of nipple-glasses to protect the clothing. By this time the fundus of the womb is at least two or three inches above the umbilicus, and by the end of the eighth month has risen to the *epigastrium*, or region of the stomach. In primipare the os uteri is still closed, but the neck is somewhat shortened, and of an ovoid shape. In multipare the outer orifice of the womb may be sufficiently dilated to admit half of the index finger, whilst the inner os remains closed.

About the first two weeks of the ninth month the vomiting may reappear, caused by the fundus pressing up against the diaphragm and stomach. The abdomen has now reached the climax of its enlargement, which is attended with considerable difficulty of breathing, from the fundus interfering with the bellows-like movements of the *diaphragm* or muscular partition separating the abdominal from the thoracic cavity.

The pulsations of the foetal heart, which were first manifest in the seventh month, now keep up a continual throbbing, and can be sensibly felt by placing the hand upon the abdomen, as can also the general movements of the foetus. The os in primipare is now slightly open, but not to the extent it is at this time in multipare. In the next half of this, the last month, the womb begins to lower itself in the cavity, when the breathing becomes freer and vomiting ceases, but may be replaced by a constant desire to go to stool, either for the purpose of evacuating the bladder or bowels. There is now some difficulty in walking, owing to the womb sinking low down into the excavation of the pelvis, where, in multipare, as a general circumstance, the os is found so much dilated as to admit of the membranes enveloping the foetus being felt by examination per vaginam.

The foregoing is an enumeration of what are called the *rational* and *sensible* signs of pregnancy; of course, they are more or less aggravated in some and extenuated in others, causing complications, as before mentioned, according to constitution, temperament, and general peculiarities of the patient. Some will pass the whole period of gestation without any untoward symptoms presenting themselves, whilst others will suffer with headache more or less, asthma, palpitation of the heart, backache, constipation of the bowels, or diarrhea, constant pain or a tingling in either of the lower extremities, with tumefaction or swelling of the same, extending down into the ankles and toes. Besides these, there is frequently a change in the color of the skin, it assuming a sallow, jaundiced hue, accompanied with an

eruption and an intense itching. Also, a general fullness of the whole body, especially about the face, neck, and shoulders; an alteration of or perverted appetite and taste, with what are called "*longings*." If the patient is not gratified in these, she is apt to become fretful or peevish, or so depressed in mind as to give vent to her feelings in frequent outbursts of crying, which are soon followed by an unusual buoyancy and elasticity of spirits, which in turn may be early succeeded by a state similar to the previous dejection.

It would occupy too much time and space even to attempt, in a work like this, to notice all the peculiarities indigenous to the period of pregnancy; consequently the above may be considered a mere outline of the most prominent physical and mental manifestations; as in this respect it may be further said, that every woman is a law unto herself; and to treat her properly it is as necessary to study her closely, in order to appreciate and relieve her mental anomalousness, as it is to understand and palliate her physical sufferings.

In the former, generally, the opportunity, power, and duty rest with those who immediately and continuously surround her, by charity, which is kindness, long suffering, and sympathy, with condolence in grief, whether real or imaginary; by cheerfulness in her periods of exhilaration and vivacity, as well as those of depression and despondency. Whilst any physical derangement, not violent or threatening, may be relieved by the ordinary domestic remedies common to all households, great caution must be exercised in administering purgatives of any kind,

as by these abortion has been innocently and unintentionally produced, when worlds, were it possible, would have been given could it have been to the contrary.

The constipation usually attending pregnancy may be relieved by from a tea to a tablespoonful of castor oil, best taken upon an empty stomach, and repeated if it does not act in six or seven hours. This is the gentlest and at the same time the safest aperient that can be used at this or perhaps any other time, when the physical condition of the patient is over-sensitive or weak and enervated. The tendency to griping it possesses may be neutralized by adding from four to six drops of laudanum. A most excellent vehicle in which to take it is simple sirup, flavored with vinegar, orange, or lemon-juice, or combined with an equal part of the aromatic sirup of rhubarb. If thus prepared and given, the presence of the oil will hardly be detected by the most fastidious or prejudiced in relation to this drug, if they have not been previously informed of its presence.

If diarrhea or looseness of the bowels occurs, it may be checked by a teaspoonful of paregoric or ten or fifteen drops of laudanum, two or three times per day, in a tablespoonful of chalk-mixture or lime-water.

For the inward burning, mostly present after eating, a little vinegar and table sirup, mixed to the taste, or half a wineglassful of lime-water, will give speedy relief.

Since writing the above we have had occasion to use some of the salts of sulphurous acid and the crystallized carboic acid itself, alone or in combina-

tion with the former, with the happiest results, either for the burning just alluded to or to check the vomiting in pregnancy. We will not now stop to consider their *modus operandi*, but suffice it to say that they will be found far more expeditious and certain for the above purpose than the oxalate of cerium or anything that we are acquainted with generally recommended in such cases.

The following formula is proposed: .

Take sulphite of soda.....	12 grains.
carbolic acid.....	4 “
sirup of orange, (or any aromatic sirup)...	} of each 1 oz.
fennel water.....	

Mix. Dose: A teaspoonful once in 4 or 5 hours, or more frequently, if necessary. To be well shaken before taken.

For the nervousness and palpitation, a mixture composed of bromide of potassa two drachms, to two ounces of simple sirup and two of orange-flower water, taken in doses of a dessertspoonful every four hours, is a most excellent remedy. To avoid these palpitations, to some extent, the diet should be light, and consist mainly of easily-digested food.

The extreme flatulency or colic sometimes present may be relieved by one and a half teaspoonful of spirits of camphor with six drops of laudanum in a wine-glassful of water. This dose may be repeated, if necessary, at intervals of four or five hours. The mixture of soda and carbolic acid, given above, will prevent this flatulency to a great extent by the power it exercises in arresting fermentation of any kind.

A species of *psoriasis*, or eruption of the skin, accompanied with an intense itching, before mentioned, occurs mostly about the last months of gestation.

This may be relieved by sponging the parts in a tolerably strong solution of common washing soda. Other complications may arise sometimes, more or less aggravated, and will require proper scientific aid, and are to be treated according to indications that may present themselves, which will hereafter be referred to.

SIMULATED PREGNANCY.

This is a peculiar anomalous nervous affection of females, termed by the French physicians *nervous pregnancy*, under the influence of which the catamenia ceases, the abdomen and breasts become enlarged, attended by morning sickness, and all other usual accompaniments of pregnancy that present themselves to the superficial observer supervene, and continue until the whole period of gestation has come and gone, without the expected offspring making its appearance, which fact will have a tendency to open up to the understanding the true nature of the case, when all other efforts may have been unsuccessful.

It is not rare that the symptoms as above described, backed up as they sometimes are by the assurance of the patient that she is certainly *en-ciente*, mislead the most experienced obstetrician. Indeed, some of these cases require minute investigation and study, and even then they may be mystifying and extremely difficult of diagnosis. Under these circumstances the patient herself may reach such a high state of nervous excitement upon the subject as to strongly maintain that she is *en-ciente*, notwithstanding all attempts that may be made to

convince her such is not really the case. Such an example is given by Froude in the well-known instance of Queen Mary, as related by him.

This class of patients was long ago described by Aristotle as those who, being embarrassed whilst eating in company, swallow wind. We may not give his language exactly, but this is the idea. Flatus in the intestines is always abundantly present in the old, nervous, weak, and debilitated. It is most frequently the result of indigestion, and is supposed by some to be excreted from the mucous membrane of the bowels, inducing that well-known condition scientifically termed *borborygmus*, from Greek *borboruzō*, "I make a dull noise," recognized by a continual rattling of the bowels, caused by flatus shooting from one part of the intestines to another. Persons are sometimes affected in this way to such an extent as to prevent their mingling in society. We call to mind the case of a lady some two years ago who declared she was *enciente*; upon being assured that all the circumstances did not justify such a conclusion, she said, "Surely, then, something must have got in me, as I can feel it continually throbbing and moving about." The affection may extend to other organs, and is, no doubt, a kind of hysteria.

This condition can be successfully treated by the administration of carminatives, nervous stimulants, tonics, and by prescribing a light, and at the same time nourishing and easily-digested diet. Turpentine will be found a most excellent remedy in most cases.

Take oil of turpentine.....	2 drachms.
mucilage }	
mint water } of each 1 ounce.

Mix, and give one teaspoonful every 3 or 4 hours.

It may be necessary in some instances to coincide with the views of the patient, and proceed to treat her as if such a state of things really existed as she, for the time, believes to be the case.

LABOR IN GENERAL.

Under this head will be included and first considered some of the different *presentations* and the *mechanism* of labor.

PRESENTATIONS.

By presentation is understood that part of the child that, upon examination, is found offering itself at the brim or superior strait of the pelvis, which most frequently is the head, but may be any other part of the child's body, and are classified by obstetrical writers accordingly.

The classification deemed most simple and suitable to fulfill the purposes of this work is that of Dr. Churchill, and is briefly as follows:

Cephalic, including any part of the head, which may be recognized by its *sutures*, *fontanelles*, general shape, and hardness, compared with the other parts. The top (*bregma*) may be known by the shape of the fontanelle, (which, it will be remembered, in describing the head, was stated to be the largest, and quadrangular in shape;) the *vertex*, by the triangularity of its fontanelle; the face, by its irregularity—by the nose, mouth, eyes, or superciliary ridge at the base of the forehead.

The *breech*, which includes the hips and loins, by its being soft and yielding—by the tuberosities of

the ischium and coccyx, the organs of generation, and fundament.

The *lower extremities*. The *knee*, by its roundness and the projections on either side of the bone, known as its condyles.

The *foot*, by its position regarding the leg—by its length, shape, heel, and by the toes.

The upper or superior extremities. The hand, by its shape—by the thumb and fingers; the elbow, by its pointedness, hardness, and smallness, compared with the knee; the shoulder, by the collar bone, (clavicle,) the shoulder blade, (scapular,) and the ridge upon it, called the spine of the scapular, and by the ribs.

MECHANISM OF LABOR.

By this term is understood the rotary motion and the different positions therein assumed by the child's head, regarding the parts of the pelvis, in its passage through the latter from the womb. The terms used in the description thereof will, in some, perhaps, necessitate a frequent reference to the anatomical part of this work. It is based upon the frequency of head presentations at the superior strait of the pelvis; as in cases where the other parts present there is no exact rule governing the motion of exit. The process is included, and will be described under the following heads:

POSITIONS.

The head presentations, for convenience, are divided into various positions by obstetricians. The classification of Baudelocque, of France, is consid-

ered to be the most simple and acceptable for general instruction, and consists of *six divisions*, which will be taken up and described in the order of their most frequent occurrence.

First, then, and occurring as often nearly as three to one of the succeeding, is when the occipital protuberance of the child's head is over against the left acetabulum of the mother, when the opposite part, or *bregma*, will be against that part of the pelvis where the sacrum and ilium bones are joined together upon the right side.

The second in frequency is the occiput at the right acetabulum, and bregma at the left sacro-iliac symphysis.

The third is where the occiput is at the symphysis pubis, and bregma at the promontory of the sacrum.

The fourth is the reverse of the first, or occiput at the right sacro-iliac junction, and bregma at the left acetabulum.

The fifth is the reverse of the second, or occiput at the left sacro-iliac junction, and bregma at the right acetabulum.

The sixth is the opposite of the third, or occiput at the promontory of the sacrum, and bregma at the symphysis pubis.

It will be borne in mind that these *all* are what are termed *vertex* presentations. The greater frequency of these may be easily accounted for when the position of the child in the womb is considered: it being suspended in the liquor amnii by the cord which is attached, as we have already learned, nearer the lower part of the abdomen than the upper. The result is that the head must be, as it

really is, the most dependent part; hence this position is brought about by the first contraction of the womb impinging upon the trunk of the child, pressing it down, and causing the head to bend forward, with the chin inclined to the breast. The next contraction, the first position being considered, causes the head to rotate, and brings the vertex to the symphysis pubis. In the next movement the chin separates from the breast, the head in the meantime gliding into the excavation of the pelvis, and continuing the rotary motion produced by the successive uterine contractions until the vertex is turned to the same side of the pelvis as it was at the beginning, but now below the inferior strait, and nearly ready to make its entrance into the world. This is termed "*restitution*," from the head having performed a complete revolution in its descent through the pelvic cavity. The uterine contractions continuing, the head is forced out, allowing the shoulders to occupy the pelvic cavity, which continue to perform the same rotary motion until the expulsion of the fœtus has been completed.

The same process occurs in the other positions of this classification. They will be understood, and can be traced out, by allowing for that portion of the head which regards the pelvis in their different parts at the superior strait. The rotation in the first position would be from left to right; in the second, from right to left; and in the third, which is a very rare position, there is no restitution at all. In the remaining three positions, the rotation would be the reverse of their counterparts given above.

The above classification of positions belongs properly to what are termed natural labors.

CLASSIFICATION OF LABOR.

Labors are usually considered under two general heads: First, *eutocia*, (from the Greek, *eu*, "good," or "proper," and *tokas*, "delivery,") which comprehends natural, difficult, or tedious labors; second, *dystocia*, (from the Greek, *dus*, "badly," and *tokas*, same as in the former case,) which includes all preternatural cases, or those in which active interference becomes necessary to preserve mother or child, or both; whilst in the former no more than ordinary assistance may be required. Each of these classifications and subdivisions will be considered in detail after awhile: our object now is to gradually unfold the whole phenomena of labor in such portions and in a manner that will prevent the mind becoming confused. Therefore, our attention will first be directed to

LABOR PROPER.

By this term is understood the efforts by which the womb begins and successfully completes the expulsion of its contents, the woman having fulfilled her time, which, as has been before stated, is accomplished, at the longest, in about ten lunar months, or two hundred and eighty days, or forty weeks. The womb, by its contractions, assisted by the abdominal muscles and diaphragm, are the principal agents in the expulsive process. The manner in which the uterine contractions are brought about is variously accounted for. Some attribute the phe-

nomena to an inability on the part of the womb to longer sustain the distension to which it has been subjected; others, to the struggles on the part of the fœtus in its efforts to have breathed into its nostrils the breath of heaven. Whatever may be the ultimate cause, it is certain that the action is altogether involuntary, and is entirely beyond the control of the parent, and, having once begun, it continues until the child and placenta are expelled, and then afterwards until the womb has resumed its normal size. All through the process the sufferings are severe in some individuals, whilst in others they are apparently slight. The duration of labor differs in different persons, and in the same individuals in different labors.

STAGES OF LABOR.

Labor is again divided into three distinct periods, called "*stages of labor*."

The *first stage* properly begins with the dilating or opening of the os uteri, and terminates with the completion of the same.

For several days previous to the commencement of this stage there are indications of a premonitory character that give unmistakable evidence that the labor is about to be inaugurated. Some of these are a diminution of the abdominal tumor, caused by the womb gravitating or settling down into the pelvis. This phenomenon is soon followed by rigors or a chilliness suddenly darting through the body, with a tingling numbness of the lower extremities, and a general irritability of the whole system, which con-

tinue until it may be, as mostly is the case, at night the patient is awakened with slight pains in the back and lower part of the abdomen. These are caused by the contractions of the muscular fibres in the upper part of the fundus of the womb, which press its contents down upon the os uteri, creating, at the same time, a slight dilatation of the os. The first stage has now fairly begun, and the pains continue at greater or less intervals, becoming more severe, until they assume a sharp, cutting, or grinding character, causing the patient to become somewhat anxious, more irritable, and perhaps alarmed as to the consequences of her situation. The cry during a pain being sudden, sharp, and piercing, is characteristic of this stage, and, from its being forced in spasmodic mutterings through the clenched teeth, the pains are denominated "*grinders*." Nausea and vomiting may now set in. If so, it may be looked upon as a favorable circumstance, especially in a plethoric patient, as it produces a relaxation of the general system, and insures the early completion of the dilatation of the os and termination of the first stage. In one of an opposite or weakly temperament vomiting should not be allowed to continue long, if possible, as it may cause such depression as to retard the subsequent stages of labor. An examination of the mouth of the womb at this time and the passages leading thereto will enable the attendant to form some idea of the probable duration and probable result of this stage. If the passages are soft, moist, not above the ordinary temperature, and the os in the same condition, and dilatable or dilating, the prospects are that it will be early terminated. On

the contrary, if the parts are unusually dry or hot, the os hard and unyielding to the touch, and not dilating, the probabilities are that the stage will be protracted and tedious. The duration of this stage varies in different persons, and may continue from four to twelve hours or longer. It is usually longer in primipare than in multipare. Its approach to a termination is announced by streaks of blood in the mucus discharge, commonly denominated "*the show*," and by the protrusion of the bag of waters that ensues, which, upon examination, will be found soft and yielding to the touch during the interval of repose, but becoming hard and tense as the pain is renewed. The object of the pains in this stage may be looked upon as merely preparatory on the part of the womb for the expulsion of the fœtus, which takes place in and completes the next stage.

In the second stage the pain assumes a different type. The patient no longer cries out during the paroxysm, but at the beginning of each is forced to close the mouth and compress the lips, and muster all her strength to aid, by the action of the abdominal muscles, the expulsive efforts of the womb.

She is apt to seize upon anything within reach, which she drags towards her with almost superhuman strength, until the pain has reached its greatest height, when, after an interval of a moment, it begins to subside, and the muscles, every one of which in the body has been called into play, commence to relax, and gradually resume their former tranquillity, preparatory to another pain, which follows after a greater or lesser period of repose, and

in which the same phenomena are manifested, until presently they assume a twofold character; for as the head advances great pressure is borne by the soft parts of the mother, and they in turn forced against the bony and unyielding pelvis, subject her to endure pain of a most excruciating character, which extends down the whole length of the lower extremities, and, though moderating as the bearing-down pain passes off, from the head slightly receding, it is continuous and more severe with each uterine contraction, until the child's head is born. This is generally accomplished by one long, lingering, or a quick succession of short pains, in which the child is propelled onwards and outwards, seeming, as it were, determined to break through every obstacle that opposes it, until the mother, exhausted, is about to give up, and she would no doubt if she could, when, with one loud, long, characteristic cry, she melts away. The head in the meanwhile is ushered into this "cold world of ours," and the mother, so great is her relief upon realizing the situation, either bursts into an involuntary flood of joyful tears, or manifests the great relief she enjoys by earnest exclamations of thanksgiving and praise unto HIM who hath declared, "though with great pain and travail she should be saved in child-bearing." With a few more expulsive pains—it may be but one, and is usually or ought to be accomplished in less time than it takes to record it here—the body is expelled, the child is born, and the second stage of labor completed.

The third stage terminates with the delivery of the *placenta*, or, as it is commonly called, "the after-

birth." The time in which its expulsion takes place varies. It is not unfrequently expelled with the child, but sometimes, from various causes, it is retained for a shorter or longer period afterwards; but generally, after a repose of from five to thirty minutes, the contractions of the womb are revived, when the placenta becomes detached and forced into the vagina or entirely through it. The labor is now completed, but the womb, by what are called "after-pains," continues its contractions until it assumes the character of a firm ball, which can be felt for several days just above the symphysis pubis by slight pressure upon the abdomen at that point.

THE CONDUCT OF LABOR.

As stated in the introduction, this work is intended for the guidance of the young and inexperienced *accoucheur* or *midwife*; consequently it will be our effort, in considering this branch of the subject, to lay before the reader *all* of the *necessary* details of the functions appertaining to this office. For this purpose it will be presumed that the reader, for the first time, is called upon to attend a patient, who is also (as she believes) about to commence her first labor, having some premonitory symptoms to that effect, and is anxious to know if such is the case. You will at once proceed to satisfy yourself if such is the fact, which a careful study of the preceding subjects has now or ought to have enabled you to do, and inform her accordingly, at the same time endeavoring to dispel any fears that may be apparent on her part, whether from real or any imaginary cause. This

you will be able to do, first, from considering her temperament, by which you may be able to ascertain the degree and cause of her solicitude, whether proceeding from a natural contemplation of the trial through which she is to pass, or from fears awakened by the unhappy fate, under similar circumstances, of some near relative or friend, which may have been unfortunately, as not unfrequently is the case, impressed upon her at this important period by some very communicative visitor. This may be done by putting the most favorable aspect upon the case that circumstances will admit, and patiently awaiting further developments. It will be well to advise a light, spare diet, that the stomach and bowels may not become overloaded, which may save a multitude of trouble; also a small dose of castor oil or some other light or gentle aperient, to be taken at the proper time, in order to have the rectum cleared of feces, which will then afford easier facility for the advancement of the head in the second stage of labor, and besides tend to greater safety and cleanliness in the same.

She may now also be advised in regard to the preparation of her bed, which should be so arranged that in lying upon her left side the back may be near the edge of the stead. It is usually prepared by placing over the sheets, upon that side of the bed just mentioned, a piece of oil or gutta-percha cloth, over which may be smoothly laid an old quilt or blanket, which are to serve the purpose of absorbing and circumscribing the fluid discharge always attendant upon delivery.

As the symptoms increase and assume a more defi-

nite character, giving unmistakable evidence that the first stage of labor has set in, it will be incumbent upon you to propose an examination of the parts, which should always be done with delicacy and a proper regard for the sensibilities of the patient. The object of the examination is to ascertain the true condition of the organs; the probable length of the stage; the capacity of the pelvis and vagina. And as it is not to be repeated oftener than is actually necessary, it should be thorough and satisfactory as to the condition of these parts, and also as to that of the os uteri—whether it is hard, dry, and hot, or cool, moist, and soft; if it is dilatable, dilating, or already dilated. If the latter state has obtained, and even if not fully so, the membranes may be felt by passing the finger into the os, and the nature of the presentation determined through them. In making this examination, the hand should first be well anointed with olive oil or lard, and the operations or movements of the hand governed by the uterine pains. The hand should be introduced during a pain, and the investigations continued during the same, pausing therein as the pain goes off, and beginning again with another pain, until, having accomplished what was intended, the hand should be withdrawn during a pain. If everything has been found in a favorable condition, the patient should at once be so informed, and after having prepared the necessary ligatures, which should consist of two pieces of cord, (saddlers' silk is the best,) about six inches long, and made inquiry about the necessary bandage for the patient, which, together with a pair of seissors, must be put in a convenient place against the time they may be called into requisition,

and after having given such other directions as circumstances may require, it will be unnecessary to remain longer in the lying-in room, unless prevailed upon to stay.

After an interval of such length as your judgment commends, if not called upon before, you should again enter the chamber, when, from the character of the pains, you will be enabled to determine at once how the labor is progressing. If they are now found to be of a forcing or bearing-down character, she has entered upon the second stage of labor, and will require your constant attention at the perineum. In order to prevent the tossing about of the hands and arms, as well as the twisting of the whole body, a sheet or any strong fabric may be rolled or twisted into a hawser, and fastened to that side of the head of the bed farthest from the patient, and extending to within her reach, that she may take hold of it to sustain herself during a pain; or an assistant may perform the same duty by holding the patient's hands in her own. All your power and energy may now be taxed, both during the pains and in the interval of the same, to encourage the patient to bear her trouble philosophically, by assuring her that it will shortly be all and well over.

She should be induced to hold the breath and close the mouth during a pain, which will assist materially in shortening the stage, by aiding the expulsive efforts of the womb. She should also be required to keep the thighs well flexed upon the abdomen, with a pillow folded and placed between the knees to keep them well apart. This arrangement, by relaxing the muscles, admits of a considerable enlargement of the

passage from the womb. She may be supported in this position by placing a chair or box at the foot of the bed, between it and her feet, for the latter to rest against.

Another examination may now be made whilst the pain is on. If the membranes be found much protruded and tough, the pains long and severe, and the labor not making a proportionate progress, they may be, with due caution, ruptured, by allowing them, during a pain, to press against the finger nail, previously sharpened or notched for the purpose. If the pains are feeble, with long intervals between them, much assistance may be derived from the ergot of rye, which is best given in powder, of about twenty-grain doses; some prefer the tincture of ergot, in doses of fifteen to twenty drops, mixed with water, and repeated in an hour or two, if necessary; one dose of the powder will usually be found sufficient to excite the necessary uterine action. It can always be given with safety after the os becomes dilated, but not otherwise in such cases. Besides expediting the delivery, it insures an early contraction of the womb after its contents have been expelled, thus acting as a barrier to unnecessary hemorrhage. As the head advances and begins to distend the perineum, the latter should be supported by gently yet steadily pressing it with a soft napkin, to prevent its being torn, as sometimes may be the case. As the head escapes it should be received into the open hand and supported in the direction corresponding with the curve of the pelvis, at the same time allowing it to perform the necessary rotary motion. The neck should now be examined, to see if the cord is around

it, as is often the case; if so, it should be liberated by gently drawing it over the head. By the time this is accomplished another contraction of the womb, perhaps, has expelled the child entire. In a moment, respiration being established, the child begins to cry. It should now be laid in as comfortable a situation as circumstances will allow, the cord examined, and, if pulsation in it has ceased, bound with one of the ligatures, about an inch and a half or two inches from the navel, and then with the other about an inch from this, and then it is to be divided between the two with a pair of sharp scissors. The child should now be well wrapped in a blanket, care being taken that the air has free access to its lungs, and handed over to the nurse, or laid in a comfortable place for awhile.

The open hand may now be laid upon the abdomen of the mother to ascertain if there is another child, or if the womb has well contracted. If there should be another, its safety has been insured by the second ligature on the cord. The mother should be informed of the fact, and it received and treated as in the preceding instance. If there is but one, or, in either case, if the placenta is not expelled at the same time or in a few moments afterwards, the cord may be gently drawn, when, in most cases, it will easily come away, if there are no adhesions or growing to the womb, as it is commonly called, or if it has been extruded into the vagina. If it does not easily respond to this gentle traction on the cord, it may be let alone for awhile, and the bandage put upon the mother. The bandage should be made of strong muslin, about eight or twelve inches broad,

and long enough to go well around the body over the abdomen, drawn, and pinned tolerably tight. This, besides acting as a support to the now relaxed and flabby walls of the abdomen, serves to keep the womb secure in its proper place.

By this time, perhaps, the child is washed, which should have been done, and well done, in tepid water, with *Castile* soap. It may be necessary, in order to remove the vernix caseosa, sometimes thickly adherent to the child, to anoint it well with olive oil or lard previous to washing it. The child is now ready to have the navel dressed. For this purpose a piece of soft linen, folded once, and about six inches square, with a hole in the middle, and well anointed, will be necessary. It is applied to the abdomen by drawing the navel-string through the hole, and carefully folding the linen over it, with its extremity looking upwards. A soft flannel bandage is to be applied over this, to retain it in place. The dressing may now be completed by the assistant, whilst your attention is turned to the mother. If the placenta has not by this time come away of itself, the cord may be held in one hand, whilst the other is passed along it into the vagina to its insertion into the placenta, which may be then seized and gently drawn away. If it does not readily yield to this, the hand may be continued inwards, until its edge is felt, around which the hand may be passed; if there is any adhesion, it should be carefully broken down or peeled off, and the placenta drawn out ~~theng~~ with the hand.

The labor is now completed. After a few minutes' repose the wet blankets may be removed, and the

patient placed, with the child by her side, in the most comfortable position that circumstances will allow, to obtain quiet and sleep. If nothing unusual occurs, and everything looks favorable to the accomplishment of that desired end, she may be safely left for a few hours to the care of the nurse, having first prescribed the necessary diet, which, for a few days, must consist of merely weak tea and toast, or panada made with crackers soaked in sweetened water, and directing that the patient must not be allowed to leave her bed or assume any other position than that of lying down for the same length of time. Ere long, usually from a half to one hour, but sometimes not for six hours, the contractions of the womb become very painful. These are termed "*after-pains*." It is considered a good indication if they commence early after labor, and there need be no fears of flooding under such circumstances. They may last a day or two, but grow gradually less severe. Each pain is followed by a discharge from the vagina, called the *lochia*. These pains are so severe at times as to be almost intolerable, when an anodyne should be given to obtain relief for the patient. Laudanum, in doses of about six or eight drops in sweetened water, repeated about every four hours, will generally answer this purpose; or the chloral, in five or ten-grain doses, in the same intervals, will serve perhaps better, as it does not leave any unpleasant effects behind, nor does it interfere at all with the secretions.

About the third day after delivery, sometimes in the second, there is usually slight fever, induced by the flow of milk distending the breasts. It will be

necessary to administer a gentle aperient to open the bowels. For this purpose castor oil is the best, principally on account of its acting without weakening the patient. Where there is a decided antipathy to this medicine, Ellis' citrate of magnesia may be given, or an infusion of senna substituted. In some cases stewed prunes will act as well, and may be given for the same purpose. After the bowels have been evacuated the fever usually subsides.

The infant should be placed to the breasts as soon as the mother has sufficiently recovered from the fatigue of the labor. This serves to excite the secretion, develops the nipples, and learns the infant to suck before the flow of milk commences.

If the secretion is abundant, and the breasts remain distended after the child is satisfied, the residue may be drawn off by artificial means, and the breasts rubbed with some stimulating lotion, such as spirits of camphor or tincture of arnica. If, after a few days, there are evidences of suppuration or gathering of the breasts having commenced, the process may be encouraged by the continued application of warm flaxseed-meal poultices. When the abscess shall have fully formed, it should be freely opened and the puss discharged, after which the pain will cease and the breast soon become perfectly cured.

The mother should keep her bed until about the ninth day after delivery, when she may be allowed to go about her room, using due and necessary caution against over-exertion until she has fully gained her wonted strength. The *lochia* may continue from two to four weeks. After a few days it ceases

to be blood, and assumes a light, sometimes a greenish, tint. This discharge comes from the open vessels at that part of the womb to which the placenta was attached; as the contractions of the uterus continue they become closed, and the discharge after a while ceases altogether.

COMPLICATIONS AFFECTING THE CHILD AT BIRTH.

Not unfrequently, when all is well with the mother, the child will require some additional attention at birth, which complications may now be considered, though belonging more properly to the next subdivision, or tedious labors.

Occasionally, from some peculiar cause, the child may be subjected to a considerable loss of blood whilst still in the womb, or it may not have been properly nourished therein. When it is born under such circumstances it will be found to breathe feebly or not at all, with very weak and irregular pulsations of its heart. In this case the cord may be tied and cut at once, without waiting for its pulsation to cease, and the child immersed in a warm bath for a few moments, then taken out, and briskly rubbed along the spine. If these means prove ineffectual in producing a reaction, artificial respiration may be attempted. This is done by closing its mouth, and, with your own to its nostrils, blowing into them until the lungs are inflated, then press gently upon the breast to expel the air again. This should be repeated several times, or until it is successful or evidently useless.

Sometimes, from pressure on the cord, or from being too long in the passages, the child may be asphyxiated, when the cord should not be tied or cut

until respiration is fully established. In the meantime, it may be sprinkled with a little cold water and briskly rubbed along the back and over the chest, or gently slapped upon the buttock. A case wherein this condition had obtained after expulsion, resulting from pure negligence, which accidentally fell into the hands of the writer, is worth relating, both on account of its being caused by the apparent atrocity of one parent and the success which attended the efforts at restoration, which, it is hoped, may lead to like perseverance, with the same result, by others: The woman had been confined, and given birth to an eight-months' male child, without any attendant whatever, though the husband was not at all in indigent circumstances. The child was suffered to remain in the position in which it was expelled from the womb, with its face downwards, and lying in the blood and excrement discharged with it, when at last it seems that the man (?) had sufficient compassion to summon aid. Happening to be near at the time, we were called in, and learned from the mother that the child had been born quite an hour. The whole surface of its body, although of white extraction, was nearly the color of black ink. The pulsations in the cord had entirely ceased, or were at least imperceptible, and those of the heart were so feeble that success in any efforts at resuscitation were almost despaired of; nevertheless to attempt it was a duty. The cord was tied, cut, and the child placed on its side, upon a dry part of the bed, and briskly rubbed and rolled from side to side for half an hour, when signs of life returning became manifest. The process was continued for another half hour, when the breathing

became regular and natural, though very slow. As soon as the child was able to swallow, a little brandy and water mixed were given it occasionally. Under this regimen it was not long before it was quite revived and cried heartily, after which, having been wrapped in a blanket, it was given to the mother, who was made as comfortable as the surrounding circumstances would admit. The unfortunate child had been in this asphyxiated condition so long that it was three days ere it resumed its wonted color. At this time it is still alive and doing well, and the unworthy disciple of St. Crispin is now apparently satisfied with his offspring.

Another complication to which the child is liable, after the head has been delivered, arises from the body being retained for an unusual length of time, inducing a condition like cerebral apoplexia, or congestion of the brain. It may be prevented, partly, at least, by withdrawing the child at once—by passing the hand into the vagina, with one finger placed under the arm of the child, then gently withdrawing it; after which the same treatment may be adopted as in the preceding case. Some writers recommend that the cord should be cut and about a tablespoonful of blood allowed to escape in such cases. Natural labors are usually completed in from twelve to twenty-four hours. When from any cause they are protracted beyond this last-mentioned period, they are termed difficult or tedious, and come under the next subdivision—

DIFFICULT OR TEDIOUS LABORS.

The first stage of labor may be protracted and tedious from the rigidity of the os uteri, when the

pains, though regular and severe, seem to have no power against it, until the patient becomes "tired and almost worn-out," as she is apt to express herself. This condition may be relieved by bringing about a relaxation of the general system. Tartar emetic or ipecac. given until nausea is produced or till vomiting is excited, will usually serve the purpose. General bleeding from the arm is recommended by some authors; also the application of belladonna ointment to the mouth and neck of the womb; and others even the Hippocratic bath, mentioned in the introduction to this volume. A more simple and often as effectual a remedy is the injection of warm water into the vagina, which may be at least tried before proceeding further.

Another cause of delay in this stage sometimes arises from that lip of the os uteri nearest the symphysis pubis being pinched between the head and the symphysis. This may be remedied by endeavoring to push the lip, with the ends of the fingers, over the crown of the head, as the pain comes on, and holding it in that position until another and another pain has taken place, or until it has been released.

A premature rupture of the membranes may sometimes occur, which is apt to cause delay in this stage, and will require nothing but long patience to wait until the dilatation is accomplished by the head, which will be the only agent to perform this service in the absence of the wedge-shaped amnion bag.

An excess of liquor amnii, apt to be present in weak and feeble patients, may be the cause of delay at times. When the os is sufficiently dilated to

justify it, the membranes may be ruptured, and the water allowed to escape.

In the second stage a condition not unlike that spoken of in the natural labor may arise, but more exaggerated, in which the same treatment may be instituted, *i. e.*, the administration of ergot, provided the os is sufficiently dilated to admit of it, and the passages are of a capacity to allow the free advancement of the head. These circumstances are to be first considered in *all* cases when the administration of ergot is contemplated.

Toughness of the membranes, also spoken of in natural labor, are to be treated as therein recommended. They are so tough at times as to admit of their being expelled with the child inclosed, without being ruptured. This is what is termed being "born with a *caul*"—a condition in which the child must necessarily perish from suffocation if not speedily extricated therefrom.

Rigidity of the soft parts is a very formidable cause of delay in some women; the pains, though strong and frequent, add nothing to the advancement of the labor, and if not relieved the patient is apt to become irritable, excited, and much exhausted. The same treatment, nearly, as recommended for rigidity of the os, is to be adopted under these circumstances, with the addition of small doses of opium, to control the action of the womb and mollify the pains until the desired softening has obtained. The hydrate of chloral, in doses the same as recommended for after-pains, may be used as a substitute for the opiate with like happy consequences.

Obliquity of the womb may be a cause of tedious

labor. If the inclination is to either side, it can be remedied by placing the patient upon the opposite side to that to which the womb is inclined. If it be to the front, the patient may lie upon her back, the womb in the meantime supported in a direction to conduct the head into the lower pelvic strait. Every one of any great experience in obstetrics has noticed, perhaps, that a change of position by the patient will often hasten the advancement of the head, which hitherto seemed to make little or no progress for hours, even if they did not detect the cause of delay. Therefore it is advised to allow the parturient woman to have some little freedom in this respect, and not keep her upon her left side in a state of trepidation, or fearing to move a muscle, as not unfrequently is the case with many.

Hardened fæces in the rectum, or an over-distended bladder, may prove to be a cause of tediousness; hence the necessity of their being early attended to and evacuated. The bladder is to be relieved by the introduction of the catheter; the fæces removed by injections of warm water and lard, or they may be taken away with the handle of a teaspoon or other convenient and suitable implement.

DEVIATIONS FROM THE VERTEX PRESENTATIONS.

Departures from the vertex presentations obviously operate to make labor more or less tedious or difficult. The first of these to be considered is the top of the head, (*bregma*,) the *forehead*, and the *face*. They are dependent upon the *departure* of the chin from the breast in the beginning of labor, the head

being flexed backwards instead of forwards, and thus sinking down into the pelvic strait. Without occupying our time and space with the details of the classification of these deviations from vertex presentations, it is sufficient to state that the positions are six in number, and are named as the forehead and vertex regards at the same time this or that part of the pelvis of the mother. The position is easily determined by the anterior fontanelle, which, it will be remembered, is quadrangular in shape. This is the most dependent part, and will be found about the center of the dilated passage leading to it.

The treatment, if interference is resolved upon, is to endeavor to throw the head more upon the chest, that the vertex may descend. This may be done, if discovered before the head has reached the excavation of the pelvis, by cautiously, gently, and steadily pressing upon the brow during a pain to *retain* it in that position. It must be borne in mind that no attempt should be made to push it up. By thus allowing the vertex to come down, the delivery becomes comparatively simple and easy.

Face presentations usually resolve themselves into two positions: the right mento iliac (chin to the right ilium) and left mento iliac (chin to the left ilium.) In the first, the right side of the face is toward the symphysis pubis. In its descent, the chin rotates until it passes under the pubic arch, and the forehead into the hollow of the sacrum. When the chin emerges, it rises toward the abdomen of the mother, whilst the forehead, bregma, and occiput in succession pass down the plane of the coccyx and perineum. In the second position the left side of the

face is toward the pubic arch, under which, as before, the chin rotates, and completes the delivery in the same position. This presentation and the positions are determined by the nose, mouth, and eyes. From the fact that the head deviates from the line in which the womb ordinarily acts, the first stage of this presentation is always protracted and severe, as is also the second stage, from the unyielding character of the bones of the face, and their non-conformation to the passages from the womb. These cases are always as aggravating to the attendant as they are painful to the patient, and require all the powers that can be brought to bear in the premises to cheer, console, and support her in her sufferings until the delivery shall have been completed.

Breech presentations are usually attended with great danger to the child, from the pressure of the head upon the cord, which is liable to take place under these circumstances, and may produce asphyxia, and consequently death, ere the child can be born. They are also very trying to the mother. The means of determining this presentation are by the softness of the parts—by the anus and organs of generation.

All attempts to draw down the limbs are to be avoided, as, if successful, it would result in diminishing to that extent the now well-dilated parts, and thereby serve to protract the labor. Therefore the case is to be left to nature until the breech has been delivered, when it should be supported in a line coinciding with the axis of the pelvis, at the same time allowing it to perform the necessary rotary motion, produced by the head becoming engaged in the pelvic cavity. When the cord makes its appearance, it

may be gently drawn down and placed in a position at either side, where it may receive as little pressure as possible. If the thorax or upper part of the body emerge without the arms being down, that nearest the anus of the mother may be brought down first, by passing the finger over the shoulder and drawing the arm down *over the face*, then securing the other, and drawing it down in the same manner *over the face*. If the delivery of the head is long delayed, introduce one hand, placing one finger in the child's mouth, and two fingers of the other hand on either side of the neck from behind, then gently withdraw the head. If this cannot be done without injury to the child, by too great a strain upon it, the perineum may be pressed back, so as to allow the air to enter the child's mouth, or a tube of some kind (even a clean pipe-stem or quill) may be introduced into the same, and the child thus sustained alive until it is expelled by the womb's contractions.

Presentations of the lower extremities are easily determined, and are to be treated in detail the same as breech presentations.

DYSTOCIA, OR PRETERNATURAL LABOR.

Under this head, as has already been stated, is included all cases of labor in which interference becomes absolutely necessary, without regard to presentations, positions, or other complications.

The causes that operate to produce these labors are either *accidental* or *pre-existing*, and may depend upon some peculiarity of either mother or child, or of both at the same time.

Among the accidental causes may be enumerated inflammation of the brain or its coverings, pleurisy, peritonitis, metritis, (inflammation of the womb,) and pneumonia, all occurring during labor; also convulsions, hemorrhages, syncope, or fainting, tearing of the womb, prolapsus, or falling down of the cord, or from an alteration of position after the pains become exciting.

The pre-existing causes are malformations of the pelvis, organs of generation, and of the fœtus, stone in the bladder, tumors in the cavity of the pelvis, &c.

From any of these complications arising during labor one of three operations may become necessary, viz: turning the child in the womb, delivering with instruments, (forceps,) or craniotomy.

The presentations which mostly require the operation of turning, or *version*, as it is technically termed, are those of the upper extremities. They include the hands, elbows, and shoulders, and are to be determined by the peculiarities of each part.

Without considering the various theories and conjectures as to the cause of these presentations, which for the most part are very unsatisfactory, we will proceed at once to describe the work necessary to be done and how to do it, as if the case was now before us. There are three varieties of turning: First, version by the head, in which the presenting part is pushed away and the head substituted for it, and the labor left to complete itself. Second, version by the breech, in which this part is drawn down to occupy the vacated position, thus becoming converted into a breech presentation. Third, and that most frequently performed, is version by the feet, in which, without

regard to the presenting part, the hand is introduced into the cavity of the womb until the feet are reached, and then, by drawing them down, causing the child to perform a complete evolution. Although it is not without danger to the child, it is usually safest for the mother. In order to perform the operation, the best position for the patient is that most convenient for the operator. Some prefer to place the patient upon her back, and then draw her buttock near the edge of the bed, the knees being supported by assistants; or, in the absence of these, a couple of chairs may be drawn to the bed-side, and her feet allowed to rest upon them; or she may be placed in position upon the hands and knees; or, if preferred, left in the ordinary position upon the left side: but the first described is probably the best, most convenient, and favorable. As a general rule, that hand should be used whose palm can be easiest directed toward the abdomen of the child. It must, with the arm, be well warmed and anointed with oil or lard, then during a pain introduced into the vagina, with the fingers and thumb drawn close together in a conical form. Then, with the other hand placed on the abdomen of the mother, to steady the womb, as soon as the pain subsides pass the former into the mouth of the womb. If the membranes have not been ruptured, continue it up, between them and the walls of the uterus, until the feet are reached, bearing in mind that you must pause and open the hand when a pain ensues. Having made sure it is the feet you have reached, rupture the membranes, and, during an interval of pain, gradually draw them down *over the abdomen* of the child into the pelvis.

By this method the arm acts as a tampon, preventing the escape of liquor amnii, in which the turning is easily accomplished. The presentation, whatever it may have been previously, is now converted into that of the feet, and is to be treated as if it had been so originally. These same rules apply to version by the head or the breech.

Turning may be performed in other presentations when it becomes necessary from any cause to hasten the delivery, such as convulsions, syncope, and hemorrhages before delivery. Sometimes it is impossible, from numerous causes, to perform the operation of turning, as, for instance, when the head has sunk low down in the pelvis, or if it has become engaged in the pelvic cavity, when other means are to be adopted, presently to be pointed out, requiring the use of obstetrical instruments. A general description of them, and the cases in which they are required, will conclude what is necessary to be said in regard to preternatural labors.

It is not to be presumed from the following description of instruments, or from what has been already said upon this classification of labors, that the inexperienced is prepared to undertake and manage cases of this kind; for the responsibility of assuming sole control in such cases is considered too great for even the most proficient to undertake without properly-qualified assistance. Neither is it proposed by these remarks to dissuade the student in cases of emergency from using all efforts necessary to afford such relief as the circumstances may demand, which a careful study of these pages will enable him to do, until proper assistance may be

procured, thus becoming the means of saving much unnecessary suffering and perhaps many a life, not so much by doing ignorantly this or that thing, but by knowing what ought not to be done, and if anything is to or can be done, when and how to do it. That it may be useful in many instances of this kind occurring in the country or on shipboard, or even in cities and towns, among the poor, is obvious enough, and is one of the principal missions of this volume, that of alleviating the suffering and saving the lives of parturient women and children in the absence of proper scientific aid.

THE FORCEPS.

As stated in the introduction to this work, the honor of this important invention to assist in parturition belongs to Dr. Paul Chamberlin, an English physician. These instruments have undergone various modifications since they were first discovered, in the different countries into which they have found their way, and at this day none who may desire them need be in want of implements of this kind, as they may be obtained in almost any city, and are of various sizes and shapes, deriving their names from the country in which they were improved. The most popular in this country are the "*Eclectic*" forceps, of Dr. Hodge, of Philadelphia. It is believed they combine all the advantages of the English, French, and German forceps. They consist of two curved blades, sixteen inches in length, presenting three prominent points for description: the *handles*, the *lock*, and the *clam*, or blades. The first of these

are smooth and round, terminating in the *blunt hook*. The second is formed by a notch in the female blade to receive the button or screw occupying the same intermediate position upon the male blade. When brought together the screw or button acts upon the same principle as the rivet in a pair of shears. The clam is thin, broad, oval-shaped, fenestrated, and curved in a degree to coincide at once with the pelvic strait and the child's head, which it is intended to grasp. The whole instrument is highly polished and composed of fine steel, and made as light as the purposes for which it is to be used will admit.

The following, taken from Dr. Hodges' own description of his instrument, may be of further interest:

Whole length of instrument, in a direct line, sixteen inches; from the joint to blunt hook, (handles,) six and eight-tenths inches; from joint to clam, (shanks,) three and five-tenths inches; length of clam, six inches. When the handles are in contact the outer terminus of the clam is separated one-half of an inch; at about midway its greatest breadth, two and five-tenths inches. The breadth of one blade forming the clam is one and eight-tenths inch, slightly tapering to one and seven-tenths inch near the extremity; breadth of fenestra, one and one-tenth inch; thickness of blade, two-tenths of an inch.

The perpendicular elevation of the outer terminus of the clam, when the instrument is lying upon a horizontal surface, is three and four-tenths inches; the elevation of the handles at the same time near the joint, is one and three-tenths inch.

The principal object of the forceps is for the delivery of the child's head, when from any cause it becomes impacted, and the labor thereby retarded or protracted. They possess the power of grasping and at the same time diminishing to some extent the size of the child's head, without damaging it in the least, if properly manipulated: thus proving an efficient means of safely extricating the child; and they will undoubtedly continue to be in the future, as they have been in the past, the means of preserving many an infantile life, of shortening the mother's sufferings, and prolonging her life to take care of and nourish her child, both of whom otherwise may have found an untimely grave. Then God bless the Chamberlins, and let all upon whom the use of the forceps may become necessary say, *Amen*.

CASES IN WHICH THE FORCEPS ARE TO BE USED.

The forceps may be used when the mother is much exhausted and the pains too feeble to expel the child, or when from some malposition of the head, either at the upper strait or in the cavity of the pelvis, or whenever they can be used to expedite the labor when the safety of the mother or child is endangered. It must be ascertained before they can be used that the mouth of the womb is fully dilated, the membranes ruptured, and the first stage of labor completed.

The manner of applying them is by placing the patient in either of the several positions most convenient, as directed for turning the child. Then, after well warming over the furnace and anoint-

ing the instrument and the vagina with olive oil or unsalted lard, and having ascertained the exact position of the head, the *male* or *left-hand* blade of the forceps should be first applied, by taking it in that hand, between the fingers and thumb, in the same manner as is commonly taught for holding the writing-pen. Having introduced the fingers of the right hand between the vagina and side of the head, *keeping in mind the curve of the vaginal passage*, the blade is gently introduced during the interval of pain, until the fenestra is exactly adjusted to the side of the child's head and face over the ear. The handle may now be given to an assistant to hold exactly in that position. Then take the *female* or *right-hand* blade in the right hand, using the fingers of the left, as directed for the right hand in the first instance, as guides or directors between the vagina and head on the opposite side. Then introduce this blade in the same manner, taking care to have the fenestra applied exactly to this side of the head and face, as with the first blade. The instrument is now to be locked, by crossing the handles, so that the notch in the one may receive the button of the other. Having been successful in this, turn the button down until the blades are firmly fastened together. Now carefully examine with the hand, by passing the fingers along the instrument to where it grasps the head, to discover if any of the soft parts of the mother are inclosed between the blades. If so, they must be relieved by relaxing the hold on the handles. Afterwards the handles may be again brought together and slightly pressed toward one another, as it were, to try them,

and then await a pain. As one comes on, both blades together in the grasp may be moved from side to side, at the same time drawing them steadily and gently upwards and towards you, discontinuing these efforts as the pain subsides, and renewing them again as the pain comes on, until the head shall have been completely extracted, when the instrument should be instantly removed and the labor allowed to complete itself in the natural way. Due caution is to be used during the extraction to guard the perineum as much as possible against injury, to which it is more liable by the presence of the forceps.

THE VECTIS, OR LEVER.

Sometimes it may be only necessary to correct some malposition, or assist the head in rotation and flexion. For this purpose another instrument, called the *vectis*, or *lever*, will be necessary. This is an instrument with a straight handle, usually about twelve inches or more long, terminating in a triangular fenestrated blade. One blade of the forceps will, in most cases, serve the same purpose, and the same rules govern its introduction as given for one blade of that instrument. It is passed over the head, using one hand to operate, whilst the other, and not the soft parts of the mother, must act as a fulcrum.

BLUNT HOOK.

Another instrument combined in the handle of the Hodge forceps is the *blunt hook*. It can be used in breech presentations, by applying it to the groin or under the arm, when necessary, to hasten the

delivery of those parts. It can also be placed in the child's mouth or in the orbit of the eye, whenever it is desired, to produce flexion of the head after the body shall have been born.

FILLET, OR NOOSE.

Another means sometimes used to hasten extraction is by the *fillet*, or *noose*. It may be made of muslin, silk, or leather, whichever is most readily at hand, formed into a running knot, to be applied around the arm or other convenient parts. The blunt hook will usually serve the same purpose whenever its use is indicated.

CRANIOTOMY.

Fortunately unfrequently, but sometimes it becomes necessary—either from an undeveloped pelvis or deformity of the same on the part of the mother, or from an abnormal size of the child's head, tumors of the abdomen or of the chest, on the part of the child,—in order to save the mother's life to sacrifice that of the child, by perforating the skull, removing the brain, and by piecemeal extracting it. This operation is called craniotomy, cephalotomia, embryotomy, and embryuleia.

Two kinds of instruments are required for this operation: perforators and erotchetts. The first are for the purpose of perforating the skull and breaking up the brain, and the latter for extracting the remainder of the child.

Having duly considered the ease and ascertained that this operation is necessary, it should not be

delayed a moment, else both mother and child may be forever lost to this world at least.

The indications on the part of the mother justifying this operation, besides those above mentioned, are when, from long and protracted efforts at expulsion, she becomes nearly exhausted, with the tongue brown, dry, and hard, the pulse at the same time frequent, quick, and small, with vomiting and shiverings or rigors.

To operate, the patient is to be placed in the same position as for the operation of version or extracting with forceps. Then, by introducing the instrument called a perforator, between the fingers as a guide, and directing it to that part of the head to be opened, upon reaching it the instrument is to be pressed onwards with a turning motion until the bones have been punctured and the brain broken up, after which this instrument may be withdrawn, and the crotchet, a double-bladed, curved-pointed instrument, introduced, in the same precautionary manner, with which the head is seized and the remnant of the child withdrawn. Great care is to be used to protect the soft parts of the mother from injury by the sharp projecting edges of the bones. If the child cannot now be extracted, it will become necessary to introduce the craniotomy forceps, by which the bones are to be broken entirely up, and, as before stated, the child taken away by piecemeal.

Both during and after this operation, which of course must be very painful and exhausting to the mother, she will require constant watching. Occasionally a stimulant—French brandy or good whiskey and water—may be given, to counteract the exhaus-

tion, and afterward opiates to relieve pain; or chloroform and ether, equal parts, may be given the patient by inhalation during the operation, unless decidedly objected to by herself or friends.

CÆSAREAN OPERATION.

This operation is performed when complications, as in the preceding case, arise, and it is desirable to give both the mother and child a chance for their lives.

The operation is performed by making an incision in the medium line of the abdomen of the mother, and through its walls down to the womb, about seven inches long; the womb is then cut into and opened, the child and placenta removed, when the womb will contract and sink into the pelvis. The incision in the abdomen afterwards should be properly brought together, and its lips sustained in opposition by sutures and bandages, after which opium and stimulants may be administered, as in the preceding cases. For further information in regard to this and other operations herein referred to, see any standard work upon obstetrical surgery.

PROLAPSUS OF THE CORD.

As before spoken of, prolapsus of the cord may occur from various causes. Under such circumstances the life of the child is greatly endangered from pressure thereon preventing the flow of blood through it.

The best means to be adopted in such cases are, when the head is in a favorable situation, to deliver at once with the forceps; or, if the head has not en-

tered the cavity of the pelvis, then turn the child and hasten the delivery.

Other means have been recommended by some, such as pushing back the cord or hooking it over the child's limbs, inclosing it in a bag and returning it to the womb by means of a small rod, after which the latter is to be withdrawn. If pulsation has entirely ceased in the cord, it is deemed by some useless to interfere, as the probabilities are the child is lost. However, patience and perseverance to the end are advisable in all things, especially these cases.

HEMORRHAGES.

The most formidable, intractable, as well as the most fatal, complications of labor, are uterine hemorrhages. They present three varieties: *accidental*, *unavoidable*, and *hemorrhage after delivery*. The first may occur before or during labor, and is usually dependent upon a partial separation of the placenta and the consequent laceration of its vessels. It may be the result of falls, blows, great muscular exertion, extraordinary mental excitement, a full habit of body, or from over-straining at stool.

This variety, though very troublesome, is not necessarily dangerous. A case—a fair type of this kind—came under the writer's charge sometime since, in which the bleeding commenced about the fourth month of pregnancy, accompanied by slight pains through the region of the womb and in the back. It was arrested, by the usual means indicated in such cases, for a short time, when it appeared again, and continued more or less during the remaining

period of gestation, resisting all attempts to prevent it. As there were no signs of exhaustion in the mother, it was feared the child would be still-born; but such was not the case, for at full time the patient gave birth to a healthy, robust child, and as soon as the womb was allowed to contract, the hemorrhage ceased altogether. In this case the bleeding evidently proved to be the salvation of the child, as the mother was of a full-blooded temperament or plethoric habit of body, thereby furnishing all that was necessary for the child's subsistence, independent of what escaped through the safety-valve for both mother and child provided by Nature herself.

Sometimes the hemorrhage may occur and be retained in the cavity of the womb by the blood finding its way into the membranes, or between them and the walls of the uterus, and thus prove fatal, without any external signs of its presence. Such a condition of things may be suspected if any general symptoms of the loss of blood are present: such as weakness, faintness, with swelling or tenderness in any part of the womb, and pains in the back.

The *treatment* is to keep the patient strictly quiet upon her back, at the same time administering small doses of opium, combined with sugar of lead. If this proves unsuccessful after a fair trial and the case clearly determined, the membranes may be ruptured, the womb allowed to contract, which in all probability will close the vessels, and the bleeding cease. If, after doing this much, the contractions should not take place, they may be encouraged by the administration of ergot and friction of the belly. If

these means should fail to excite the womb to action, all that remains to be done is to turn the child and deliver, then extract the placenta at once. The great enervation resulting from the labor must be met with slight stimulants: milk punch or wine whey, beef tea, and an occasional dose of opium—about one-fourth of a grain every four or five hours. The stimulants are to be used very cautiously, and not carried beyond exciting a gentle reaction, or they may prove hurtful and dangerous.

Unavoidable hemorrhage may depend upon the placenta becoming partially or entirely detached from the fundus of the womb, falling down over and covering the mouth of the same; from which circumstance it is termed *placenta prævia*, or the placenta first. It may occur three or four weeks before full time for labor has arrived, and manifests itself by slight bleeding at first, which may suddenly disappear and return again after a day or two. If an examination of the womb be made, the placenta will be found covering its orifice. Having once become familiar with the peculiar rugated feel of this organ, it can always after be very easily distinguished from any other part of the mother or child or from a blood clot.

Treatment.—If the period of gestation is not completed, and the discharge but very small in quantity, the patient should be put to bed and there kept quiet for a few days, in the meantime carefully watched, administering small doses of *opium* (*never over a quarter of a grain at a time*, unless there is considerable pain; in these or any other cases always remembering that this drug is cumulative, lying dor-

mant sometimes in the system for a while, and suddenly manifesting its deleterious properties) with sugar of lead, three to five grains, every four hours. If the hemorrhage be profuse, the indications are to deliver at the earliest moment; and if the presentation be any other than that of the feet, the child should be turned and delivered at once, by introducing the arm, pushing aside the placenta, (some advocate the delivery of the placenta first,) and rupturing the membranes *high up*: a rule to be followed in all cases of turning when the membranes have not been previously ruptured. The placenta is to be delivered as soon after as possible, and all available means used to stop the bleeding. Ice introduced into the cavity will be very serviceable, but probably a solution of the *perchloride* or *persulphate* of iron, by means of a sponge, introduced into the cavity of the womb and brushed over its surface, is the most reliable means that can be adopted in cases of such extreme emergency as these, and may prove successful; but, alas, it is too true, in many cases, all that science, art, and the anxiety of friends can do may prove abortive, and the patient, in most instances, soon sinks, and dies from exhaustion.

Hemorrhage AFTER delivery.—After all labors, whether natural or otherwise, there is some loss of blood, which varies in quantity in different individuals, according to peculiarities of constitution, which is natural and to be expected from the very nature of the case, and therefore requiring nothing to be done for it, as it will in due time cease of its own accord. But sometimes a great discharge may take place

either immediately after the completion of the second stage of labor, or it may not be for an hour or two after the third stage has been completed, or perhaps it may not come on for several days thereafter, as sometimes is the case, owing to a partial or total inaction of the womb, which, instead of contracting towards its natural size after having expelled its contents, remains dilated to a greater or lesser extent, the blood in the meanwhile streaming from its numerous open-mouthed vessels, which, if not closed, must very soon result fatally to the unfortunate patient.

In addition to the womb remaining distended, the fact of which may be discovered by applying the open hand over the abdomen of the patient, when the womb will be found distended nearly the same as before its contents were discharged. There will also be a weak, tremulous pulse, accompanied by a dimness of vision, restlessness, sighings, shiverings, and fainting.

In the treatment of this condition, the principal object is to excite the womb to action, which of itself will stop the bleeding. Various means have been proposed for this purpose. Frictions over the abdomen or kneading the same with the closed fists, as in preparing dough; by ice thrust into the cavity of the womb, or by squeezing the juice of a fresh-cut lemon into the same. All of these may be tried in succession, at the same time administering by mouth *ergot*, ten (10) grains; of *sugar of lead*, five (5) grains; opium, one-eighth, ($\frac{1}{8}$), made into a powder, and given every hour until four shall have been taken, or until the discharge ceases. But the principal re-

liance must be upon the local means recommended for quick results. A tolerably strong solution of Monsel's salt of iron may be injected into the womb; it is probably the best styptic that can be used in such cases.

A portion of the after-birth may sometimes remain attached to the womb, by which the latter is prevented from condensing itself, except below the fundus. This phenomenon is termed the *hour-glass* contraction, from the womb assuming the shape of that instrument in its efforts to expel the remaining cause of irritation. In this case the hand is to be introduced into the womb, and the adhering part of the placenta peeled off, when the former will resume its regular and wonted mode of contracting.

INVERSION OF THE WOMB.

Too much caution and gentleness cannot be used in extracting the placenta, or the womb may be turned inside out, owing to a want of power in the organ to maintain its natural condition, when but very little force will be required to induce this unhappy state of things; or it may be sometimes so weak, flabby, and relaxed as to do so spontaneously at the time of expelling its contents. In either case it is indicated by the absence of the tumor usually produced by the womb immediately after delivery just above the mons veneris, and more decidedly by the appearance of a livid protuberance found in the vagina upon examination; the patient at the same time complaining of great pains in the lower part of the abdomen, accompanied with some considerable straining, vomiting, and sometimes fainting.

If the placenta remains adherent it should be detached, and the fundus of the womb gently and steadily pushed back, until it assumes its natural shape and position.

PUERPERAL CONVULSIONS.

There are three varieties of convulsions that present themselves for consideration as complications, which may occur either before, during, or after labor.

They are, first, the *hysterical*, which usually occurs in those of a very nervous temperament or previous hysterical tendency, mostly at the beginning of gestation, and is not so dangerous as the other varieties. It is recognized by being accompanied with alternate crying or laughing, with great contraction of the muscles of the back, and by the absence of entire insensibility.

This variety may usually be cut short by applying cold water or ice to the head of the patient, to be followed by antispasmodics, such as valerian, camphor, and asafoetida.

In severe and protracted spasms it may be necessary to apply leeches to the temples, in order to break up the attack.

They may be avoided to a great extent, by persons subject to them, by taking, two or three times per day, a bromide of potassium mixture, according to the following formula:

Take bromide of potassium.....	2 drachms.
sirup of ginger.....	}of each 2 ounces.
orange-flower water..	

Dose, from a dessert to a tablespoonful,

taking care to keep the bowels well opened by an

occasional dose of castor oil, or some other gentle aperient.

The second variety, *epileptic convulsions*. The premonitory indications of the approach of an attack of epileptic fits are headache, dimness of sight, ringing in the ears, rigors, nausea, and sometimes vomiting, soon followed by loss of sensibility, with the face purple, turgid, and convulsive movements of its muscles, especially those of the eyelids and lower jaw, in which the tongue is apt to be severely bitten, the breath in the meantime being forced through the vibrating teeth in short and peculiar hissings, which, if once heard or seen, can rarely afterwards be forgotten. There is also foaming at the mouth, and, as frequently is the case, involuntary discharges from the bowels and bladder.

The spasm may last but a few moments, and cease or be followed in quick succession by another and another, for hours and sometimes days. If the attack comes on before labor, contractions of the womb are apt to be provoked by the muscular excitement of the whole system, in which the child is usually born dead. If the attack occurs during labor, and that far advanced, it will continue as before, and the child perhaps be saved.

When the convulsions take place not until after delivery, it may be owing to some injury received by the brain during the expulsive efforts, which does not manifest itself for a greater or lesser period after they have subsided.

In those who have an inordinate swelling of the limbs and a general unusual enlargement of the body during gestation there is seemingly a tendency

to these convulsions, and they may be anticipated or prevented to some extent by proper precautionary measures—such as attention to diet, which should be sufficient, but light, avoiding indigestible substances, keeping the bowels well cleared, and by taking suitable and sufficient, at the same time moderate, exercise. It is sometimes the case with young and inexperienced married ladies, just previous to lying-in, that they will persist in indulging in strong food sufficient to last them through the siege, as they term it—a circumstance not unfrequently attended with serious consequences. By all means the patient should avoid eating much of anything just previous to lying-in, as a loaded stomach at this period is generally the most frequent cause of these attacks, although they may be the result of fright or of over-anxiety of mind as to the result of the labor itself.

The *treatment* is to relieve the brain from its engorged condition, by general bleeding from the arm, ice to the head, and cups (never less than ten or twenty) to the back of the neck and along the spine. It is best to shave the head, and apply the ice by means of a bladder continually. A purgative of calomel and jalap, ten grains of each, or what is more speedy in its action, *Croton* oil combined with olive oil—two drops of the *former* to a teaspoonful of the latter. If the spasms occur before labor, nothing more can be done to assist it until the os uteri becomes sufficiently dilated to admit of the membranes being ruptured, when the operation should be performed without hesitancy. If they do not come on until the labor has advanced somewhat and

the head within reach, the forceps should be applied, and the child delivered. If the head be immovable by these instruments, and the indications are that the child is not alive, then, and not until then, the head should be punctured and the child taken away. As the probabilities are in favor of the convulsions ceasing after delivery, in all cases, when feasible, the child may be turned and delivered, and thus possibly both saved. Great caution and patience are advised in these complications, notwithstanding the frequent urgings and expectations of anxious relatives or friends that something extraordinary should be done. It is here that young practitioners, especially by these importunities, are apt to become worked up into such a state of excitement, or have their sympathies so wrought upon, as to do that which they would not and should not have done; that is, to have unnecessarily interfered, and probably sacrificed the life of the child, whilst there was no hope that the life of the parent could have been saved. Therefore these extreme measures are to be adopted only after due deliberation and mature consideration of all the circumstances in the case.

The third variety, *apoplectic convulsions*, may be preceded by symptoms similar to those of epilepsy. It occurs most frequently during labor, and is the result of the shock received by the brain in the great excitement to the general system dependent upon the expulsive efforts of the uterus. There is no distortion of the face or body in this form of convulsions, except at the beginning there is a throwing about of the arms, as in efforts to rise up. These are

soon followed by a general relaxation of the whole body, with stertorous breathing or snoring.

The treatment is the same as in epilepsy. The object is to save the child, if possible, by rupturing the membranes, by turning, or by the forceps. In all these attacks the patient will require the immediate and constant watching of the attendant, so that any favorable circumstances occurring may be taken advantage of that may prove efficient in restoring to life and friends a patient under these unfortunate circumstances.

PUERPERAL MANIA, OR CHILD-BED MANIA.

This condition may be the result of the great prostration and debility succeeding the convulsive attacks just considered, or it may be from great debility or depression occurring during gestation. It is a degree of mental derangement, assuming the form either of dementia, monomania, or general mania. Whichever of these varieties or forms it may assume, when appearing under these circumstances it is called puerperal mania, and is characterized by great depression of spirits, langor, and indifference, or extreme excitement and violence, in which the patient is apt to have a decided antipathy to her relatives or friends or even her infant child.

The treatment in these cases is to keep the patient quiet in a dark room, and removing or keeping away from her all sources of irritation, whether of objects, relatives, friends, or even her child, that may for the time being appear obnoxious to her. She should be constantly watched, and prevented from doing her-

self harm. Under this restraint, with attention to the general condition of the body, a speedy and complete recovery will usually result in most cases.

PUERPERAL FEVER.

This is also called *child-bed fever*, *peritoneal fever*, *puerperal peritonitis*, and fever from *inflammation of the womb*. Some believe the cause of this fever to be an inflammation of the womb or its appendages, others that it is dependent upon a vitiated condition of the blood. It is not necessary, in an elementary work of this kind, to discuss the probabilities of either one of these theories being the right one, for it would occupy too much time and space; but will refer the reader who may desire to investigate the subject further to *Scanzoni*, one of the highest German authorities, who advocates that of the blood poison; also *Rokitansky*, who advocates the same, and believes the disease contagious.

Dr. Fergusson and other English and American authorities consider that the disease is capable of being divided into four different varieties. And as this is the most probable, as well as the generally accepted hypothesis, and best accords with our own experience, we adopt it for our present purpose.

The first is that which most frequently occurs, commencing with a chill and immediately followed by fever, pain, and great tenderness over the whole abdomen, especially in the region of the womb; the skin is hot, pulse quick and small, considerable headache, and confusion of ideas. These manifestations at least point to the fact that in this variety the womb and peritoneum are mostly involved.

The *treatment* usually prescribed, if the patient be of a full habit, is general bleeding from the arm and leeches to the abdomen, followed by warm fomentations to the same. Afterwards give a purgative, to have a free evacuation of the bowels, followed by Dover's powder and a small portion of calomel, together with sweet spirits of nitre and liquid acetate of ammonia, and very light diet: beef tea, veal broth, panada, arrowroot, and milk.

The *second variety* somewhat resembles that of a mild typhus fever. It commences with a chill or rigors, followed by fever, attended with nausea, vomiting, and diarrhea; the tongue soon changes from a white to a red color, and the skin assumes a dusky hue; at the same time there is violent headache, confusion of mind, cessation of the lochial discharge, and the secretion of milk.

The *treatment* is the same in the beginning as in the first variety, except this will not admit of general bleeding, and will require to be treated with stimulants so soon as the active stage has passed off. Give milk punch, wine whey, quinine, and Dover's powder, to secure rest, or the hydrate of chloral, as recommended in another part of this work.

The *third variety* is more decided from the very beginning, and the whole force of the disease seems to concentrate itself upon the nervous system. The patient, at first delirious and greatly excited, soon becomes comatose or stupefied, and may so continue until the disease terminates in death, which is too apt to be the case in this variety.

The *treatment* must be active from the outset. Blisters to the back of the neck, warm purgatives

and laxative injections are about all that can be done in most cases; but every other available means may be tried, whilst the patient in the meantime is to be made as comfortable as circumstances will admit.

The fourth and last variety is the worst form of all. It is in this that there seem to be unmistakable manifestations of blood poisoning. The patient soon becomes exhausted, the abdominal pains and shiverings are intense, the eyes glassy, the skin dusky, the pulse quick and feeble, the breath laborious and foetid, attended with a husky cough. These last of themselves are sure evidence of mortification having already begun in the lungs.

The *treatment* consists in the application of leeches to the abdomen, blisters to the nape of the neck, and the internal administration of calomel and opium, in the beginning of the attack; stimulants, tonics, and beef tea in the latter stage. This variety, it is needless to add, soon runs its course, terminating fatally.

It cannot be urged too forcibly upon the attendant, especially the young practitioner, that in all these complicated conditions consequent upon parturition, too much care and attention cannot possibly be given to the patient, nor can too much caution be exercised in making up a prognosis, as the patient may apparently be doing well in the morning or at night, and in twelve hours therefrom become a corpse, the result of some internal lesion, caused by the violent excitement and the consequent strain upon every organ of the body; and though several days may elapse ere it becomes manifest, it has then completed

its ravages, and death may soon or quite suddenly close the scene—

“Or ever the silver cord be loosed, or the golden bowl be broken, or the pitcher be broken at the fountain, or the wheel broken at the cistern, then shall the dust return to the earth as it was: and the spirit shall return unto God who gave it.”

TWINS, TRIPLETS, AND QUADRUPLTS.

It is universally known that in our species, as a general thing, but one ovum of the female becomes impregnated at a time; and it is also well known that sometimes, from some peculiar circumstance, more than one—*two, three, and even four* ova—are simultaneously, or very nearly so, fecundated. The frequency with which this may occur, in the first instance, or *twins*, is estimated to be about in the proportion of 1 to 77 $\frac{3}{4}$; in the second instance, or *triplets*, it is about 1 in 5,840; and in the third, or *quadruplets*, it is estimated to be about 1 in 129,172 times.

Labor under these circumstances is often premature, and consequently attended with a little more danger to parent and child than in ordinary or single labor. To the former, or mother, the danger is about 1 to 20; whilst to the latter, or offspring, it is estimated to be about as 1 to 3 $\frac{1}{2}$. Each child usually has a separate set of membranes or envelope and placenta, although sometimes during the whole period of gestation they are nourished through one common placenta; especially when the offsprings are not separable after birth, as instanced in the popularly-known *Siamese twins*, and the *double-headed girl*

on exhibition in this city recently: undoubtedly in each of these cases but one set of membranes inclosed both embryos.

The children in plural are obviously smaller than in single births, though there have been cases reported of twins weighing each as much as eight pounds. At times they are unequally developed, and it is believed that twins of opposite sexes are the most common; in which case it is also supposed by some that the female is apt to be sterile: a conclusion improperly determined no doubt from the fact that this condition obtains in some quadrupeds: the cow, for instance, from which circumstance they are termed *free martens*. But it is very generally conceded that such is not always the case in the human species. The indications pointing to the presence in utero of more than one fœtus are not usually manifest from a superficial examination, as a more increased size of abdomen in the mother is not an indication of itself, because this may be the consequence of a dropsical effusion in the abdomen, ascites, or an increased size of ovary, an excess of liquor amnii, or from an unusual prominence or projecting inward of the lumbar vertebræ, inducing the condition known as sway-backed, and from an increased fatty deposition in the omentum.

The actual presence of more than one fœtus can only be ascertained by auscultation, *i. e.*, by placing the ear upon the abdomen of the mother, when the pulsation of two fœtal hearts may be recognized and distinguished by their separate sounds in different localities.

Labor with plural births is generally slower than

in ordinary cases, owing to a want of direct concentrated action of the uterine forces upon the cervix and os uteri, which is exerted by the single wedge-shaped bag of water when the contraction at the fundus takes place, although the pains may be longer, and occurring at regular intervals. After the birth of the first child there is a greater or less period of time, ranging from a few minutes to ten hours, and sometimes extending to eight days, and even six weeks, before the birth of the second. There are several conditions that may occur, and give rise to the suspicion of a second child being present, when probably it is not really so; therefore, it is not well to be in too great a hurry to impart such a suspicion to the mother; wait, at least, until the fact is determined by a per vaginum examination, as the presence of another child may be simulated by the circumstances before mentioned, or by an enlarged placenta, kidney, ovary, or spleen. It is well to satisfy the mind fully upon all occasions in this relation, as it has sometimes happened, on the other hand, that the accoucheur has gone off and unconsciously left a second child in the womb to perish, and he to bear the obloquy.

In the *treatment* of plural labors, the main question is as to how and when to interfere for the safe delivery of the second child, which question must be decided by the general circumstances governing the case at the time. It is well to give the womb ample opportunity to complete its work of expulsion ere active interference is commenced. By way of filling up a part of the time, the usual bandage may be applied to the mother, with the view of

tightening it after the labor shall have been completed. If half an hour elapse without uterine contractions occurring, they may be partly provoked by briskly rubbing the abdomen of the mother and by the administration of ergot, as recommended in ordinary labors. In the event of these means failing, after waiting a reasonable time, the membranes may be ruptured at once, especially if the presentation is a natural one, and the delivery accomplished as speedily as may be.

The same directions will apply to triplets and quadruplets. Always exercise great care about making traction upon the cord of the first child, as the rupturing of it may produce hemorrhage and prove fatal to the second.

If the upper extremities present, it is best to turn and deliver. If the head present, and it is within reach, it is recommended to use the forceps, if necessary, in order to expedite matters. Whenever interference has been indispensable to assist in the delivery of the first, it will, as a matter of course, be required with the second child.

It is stated by some, that if three or four hours intervene before the birth of the second child, the probabilities are that it will be still-born. We know that such is not always the case.

The presentations in plural parturition, to use a common phrase, become very much mixed up sometimes: as, for instance, the right foot of one and the left foot of the other foetus, and *vice versa*, may be the most pendent; or the same may occur with the hands, or the head of one and the foot or feet of the other; or it may be that the feet or heads of both at

once may present. From all these, and other circumstances which may arise, plural are frequently followed by more dangerous consequences than single labors; besides, hæmorrhages, convulsions, or inflammation of the womb may follow; all of which complications, if either arise, are to be treated as pointed out for ordinary labors.

PHLEGMOSIA DOLENS.

"*Milk leg*," "*œdema lactum*," "*metastasis lactis*," "*crural phlebitis*," "*œdema dolens*."—The true character of this peculiar disease, though long known to physicians, has not until recently been well understood. Mauriceau supposed it was the accumulation of those fluids in the limb that should have passed off in the lochia. By others of his countrymen it was held to be a deposit of milk; hence it was termed by them "*depot du lait*." Subsequently it was attributed to the rupture of lymphatic glands at the brim of the pelvis, and again it was considered to be an inflammation of the absorbents. To Dr. Davis, no doubt, is justly due the honor of detecting the true pathology of this disease, which he fully describes in a work, published in 1823, as an inflammation of the veins of the leg; a fact that was verified in a few years afterwards by Dr. Lee, who traced the inflamed veins into the womb. From him it received the appellation of *crural phlebitis*, or an inflammation of the veins of the thigh.

The premonitory symptoms of the disease are, a great depression of the system generally, attended with considerable irritability or uneasiness in the

lower part of the abdomen, extending down into the leg, until about the twelfth or fifteenth day. There is considerable swelling and tenderness of the whole limb. The bowels are costive, the stools light and clayey, no appetite, terrible headache, accompanied by a great depression of spirits.

The swelling may begin at the calf and ascend to the thigh, or begin at the latter and extend downwards to the calf. The pain is acute, and increased by any efforts to change the position, and even more so if the leg is allowed to become pendent. The color of the limb at this stage is usually white, though sometimes it is red and shiny from the tension of the skin, induced by swelling. The femoral or thigh vein feels hard, and is movable under the fingers by making slight pressure directly over it. Direct pressure with the point of the fingers on any part of the swollen limb, when performed at the beginning or decline of the disease, is attended with a pitting, which remains sometime wherever the fingers have been placed; when the disease is at its height, the pitting is not so easily produced, from the tension of the skin before spoken of.

Both limbs may be attacked at once, though such is not often the case. The left is most frequently the seat of disease, which in its acute form continues about two weeks, and then subsides; or it may assume a chronic form, wherein the swelling and lameness may continue for months and even years, though generally it terminates favorably in from two to four weeks.

The treatment is to open the bowels by the administration of a mild cathartic.

Take calomel.....	6 to 8 grains.
extract of leptandrin.....	1 grain.
extract of colocynth compound...	6 grains.
extract of hyoscyamus.....	$\frac{1}{2}$ grain.

Make into 3 pills. Take one every 4 hours, until the desired effect is produced.

After which, at bedtime, it will be necessary to give a small portion of calomel, with Dover's powder—eight grains—to secure rest at night. Leeches may be applied along the whole length of the affected limb, followed by the continued application of warm fomentations—such as the infusion of poppies, poultices of bran or flax-seed meal. The patient must be kept in the recumbent position, with the affected limb elevated somewhat higher than the body; the suppression of the lochia, which sometimes occurs, may be treated by injections of warm water into the vagina.

In the chronic form of the disease use frictions, stimulating lotions, and fly-blisters. Keep the limb well bandaged with strips of woolen blanket. Good diet and tonics will be necessary also to support the patient in the latter stage of the disease.

HYSTERIA.

This disease has already been considered in its relation to gestation and the puerperal state. As it is sometimes present in unmarried females during the whole period of pubescence, we now propose briefly to consider it exclusively in this relation.

It occurs at irregular intervals in what are commonly called *fits*, and may depend upon a partial or total suppression of the menses, especially in indi-

viduals of an irritable and nervous temperament. It manifests itself, without any apparent cause at the time, by the patient suddenly bursting into a fit of weeping, which may soon be followed by convulsive laughter. These paroxysms may follow one another for sometime, and terminate in a series of loud sobs, after which the patient usually falls into a doze of sleep. Mostly, in its inception, it is attended with palpitation of the heart, and a sensation like unto a ball rising up in the wind-pipe, (*globus hystericus*,) producing a feeling of suffocation. In more confirmed or chronic cases, the fit or spasm is more marked, and is accompanied with convulsive movements of the hands, lower limbs, and the muscles of the face, with dilated pupils. In all other respects the disease resembles that already described as attendant upon the period of gestation and parturition, and the general treatment is the same as therein pointed out.

CHLOROSIS, OR GREEN SICKNESS.

The general circumstances operating to induce this condition, as well as the disease itself, have been considered under the caption *Amenorrhœa*, the absence of the menses apparently being the principal cause of the complaint, or *vice versa*. But, as it is recognized as a disease of itself by some, a special reference to it here may not be out of place. The patient has a pale, lurid complexion, with general languor, listlessness, lassitude loss of appetite, depraved digestion, and palpitations of the heart. The blood is thin and light-colored, from its being deficient in coloring

matter or iron; in a word, the patient is *anæmic*. The disease may be dependent upon an absence of the menses. When by proper remedies that discharge has been established, the former may continue from an excessive loss of the menstrual fluid. The symptoms and treatment of the disease under these circumstances have been pointed out in the article on *Menorrhagia*, which see.

ANÆSTHESIA, (*Gr., without sensation.*)

* * "There is no danger, in that show of death it makes,
More than the locking up the spirits a time,
To be more fresh reviving."—*Shakspeare*.

From time immemorial, or from that "whence the memory of man runneth not to the contrary," among all peoples, nations, and tongues, and even some of the lower animals—so far as they are able to make intelligible the fact—there is and has ever been a natural aversion to that peculiar sensation commonly denominated pain; consequently the mind of man has in all ages been directed towards some means whereby to prevent, assuage, or neutralize this great enemy to the peace and comfort of animal life. The ancients sought the coveted prize, and found it existed to some extent in the well-known *Cannabis Indica*, (Indian hemp.) This drug was prepared to be taken by them either in substance in the stomach or by inhaling the vapor evolved from the boiling plant. It has been stated somewhere (correctly, no doubt) that this hemp was first used for the purpose of deadening sensation by the Chinese,

nearly two thousand years since, and was known among them, in their peculiar tongue, as *ma-yo*.

Mandragora, (Greek *anthropos*, "man," and *morphe*, "form,") our common mandrake or May-apple, at a more subsequent period perhaps was a popular anæsthetic among the Greeks and Romans. As a specimen, indicating how far they had succeeded in their investigations to this end in the thirteenth century, we give the following *recipe*, proposed by Theodoric, a pupil of Hugo, in Italy, at that period of time: "Take," says he, "opium, juice of the unripe mulberry, hyoseyamus, hemlock, mandragora leaves, ivy-wood, forrest mulberry, lettuce-seed, dock-seed, of each one ounce. To be mixed (with water, it is supposed) in a brazen vessel, with a large sponge, and let it boil long as the sun is up in the dog-days. Let the sponge absorb the whole, and put it away." When it was to be used, the sponge was soaked in warm water, and held to the patient's nose until the desired effect was produced. This continued to be the most favorite, if not the only known, anæsthetic for nearly three centuries, as Bulleyon, in 1579, speaks of it as being used to put patients, who were to be operated upon for stone, "in a trance or a deepe, terrible dreame." This compound, it seems, had now about served its time, and was objected to on account of its deleterious effects upon some, the violence of the convulsions, and, no doubt, numerous deaths which it must have produced in others. In the year A. D. 1597 a Neapolitan, Baptista Porta, published a work upon natural magic, in which he speaks of a quintessence extracted from medicines by somniferous menstrea. What the nature of this

substance was we are unable to define, but we are told "it was kept in leaden vessels, tightly closed, lest the *aura* should escape, and the medicine vanish." When used, the cover was removed, and the vessel applied to the nostrils of the patient, "who draws in the most subtle power of the vapor by smelling, and so blocks up the fortress of the senses that he is plunged into a most profound sleepe, and cannot be awaked without the greatest effort; which things are plain to the skillful physieian, but unintelligible to the wicked." Dr. Snow supposed that the substance above referred to must have been *sulphuric ether*.

Dr. Moore, of London, in 1784, suggested and used compression of the nerves of the limbs as a means of preventing pain in amputations. It is obvious that such a method of itself must have been almost as painful as that produced by the operation of amputation, and the doctor no doubt found few aiders and abettors in his new theory, and probably, it may be added, fewer patients. Besides, it had *more* the appearance of retrograding than advancing toward the desired goal. Whilst all those who were fondly hoping that some alleviating means would sooner or later be suggested began to despair of ever attaining the desired end, a few years afterwards, A. D. 1800, Sir Humphrey Davy came to the rescue, and proved by experiment the anæsthetic property of the nitrous oxide or laughing gas. This discovery, owing to the attention that was now given to the beautiful science of chemistry, was soon, A. D. 1828, followed by the suggestion of Dr. Hickman of the probability of there being an anæsthetic virtue in

carbonic acid gas, a fact that all now know to be dreadfully true; but it was important then, and is mentioned as an evidence of the zeal with which the idea of discovering some reliable anæsthetic was pursued by men of scientific attainments at that time, and whose efforts were so soon to be rewarded by success. To this end our own countrymen can justly lay claim to the honor, for in 1822 Dr. Godwin had already discovered that sulphuric ether was capable of suspending sensation, a fact that was verified by Drs. Mitchell in 1832; Jackson in 1833; Wood and Bache in 1834. But to Dr. Morton, of Boston, in 1846, the world is indebted for having turned the discoveries of these gentlemen to account; for he, by experiment, demonstrated the fact that the long-looked for secret, hid away in the hitherto unfathomed recesses of mysterious nature for so many ages, had now revealed itself to the persistent interrogatories of this bold, fearless, and intrepid son of science, who, with temerity and daring, pursued his inquiries down almost to the very doors of death, and there wrenched from its hiding-place that boon which otherwise, probably, would not yet have been given us to alleviate the pains that had so sorely afflicted our race from the time of Adam and Eve. The success which attended the painless dental operation of Dr. Morton soon spread throughout the whole of our land and across the Atlantic. In England the news of his success for a time caused great consternation among the surgeons; but they were swift to verify Morton's experiments by those of their own. Foremost among these was the celebrated Surgeon Liston, whose operations under the

influence of ether were followed by the same success that had attended Morton's.

It was now believed that the same anæsthetic property resided in other like substances, and Dr. (also Sir) J. Y. Simpson, of Edinburgh, who had turned his attention to the subject, soon after (1847) discovered that chloroform was capable of producing the same effects that were attributed to ether, and used this agent in his hospital and private practice to alleviate the sufferings of parturition, the result of which he has given us in an elaborate and exhaustive article upon the subject in his truly excellent and complete work on midwifery.

In the month of February, 1848, Drs. Channing and Perkins, of Massachusetts, the former of whom has also published a most excellent and ample work upon the subject of chloroform and ether, frequently experimented with these agents upon frogs, the results of which are detailed in the work just referred to. The effect of small doses, as observed in the webbed-foot of the frog, was not to interrupt the capillary circulation, whilst larger doses caused a complete stagnation of the blood therein: these minute channels remaining full and distended, but the blood in them perfectly quiescent, and so continued until the effects of the anæsthetic began to wear off, when the motion was gradually renewed, and the blood pursued its wonted course. These experiments are important, inasmuch as they undoubtedly illustrate the condition present in the human subject under the influence of chloroform and ether. The success that has attended the use of these agents in midwifery, and the great relief afforded by them, espec-

ially in preternatural cases, when in the hands of conscientious and capable physicians, has been such as to preclude all objection to their use, on any reasonable grounds, even in natural cases, where the patient is extremely sensitive to pain, or when it is earnestly desired by herself or friends. However, some object to the use of anæsthetics upon several grounds, which we will briefly consider.

What are termed moral objections to their use, *i. e.*, that there is danger of their being too freely used where there is no occasion for them, or that they will be indiscriminately used by the vile for sinister purposes, might as reasonably be applied to any other soporific medicine, and are almost too superficial and groundless, either in probability or even possibility, to be worthy of notice, as also are the objections that they may prove injurious to the child; for there is no instance of the kind yet known among the many cases in which they have been successfully employed. The other objections, that the pains of labor are so slight or trifling, as contended by some, as not to require their use, or that these agents are uncertain and unsafe in their effects, are alike, to our mind, feeble, preposterous, and childlike.

Without entering upon a theological discussion of what has been advanced as the religious objections to the administration of anæsthetics in midwifery—that it is an interference with the decree of the Almighty, as quoted in the introduction to this work, when “unto the woman he said, I will greatly multiply thy sorrow in conception; in sorrow shalt thou bring forth children”—we may ask if the same exception would not as justly apply to all other means

used to alleviate the sufferings of parturition, and other branches of the healing art? Indeed, it is not too much to say that such an idea is at variance with the progress of science and civilization, not to say the infinite mercy of God himself, who, although He "created man uprightly," has allowed him to "seek out many inventions," necessitated by the fall, for his comfort, convenience, and relief, whilst passing through this temporary sublunary existence.

We do not advocate the general and indiscriminate use of these powerful agents, nor are they to be used without great circumspection, upon occasions wherein they may be strongly indicated or urged by the patient, and then only by those fully competent to the task, and always in the presence of proper assistants, or at least a third party.

The best compound to be used is that of equal parts of chloroform and ether—about a half to one ounce of each will answer every purpose in most cases—as the object is to keep within reasonable bounds, *i. e.*, not to go beyond the loss of sensibility, as entire etherization is never necessary in midwifery, except in instrumental or other difficult cases; and then a competent person must constantly watch the pulse, in order to know which correctly, its nature and frequency must be fully tested and ascertained before administering the anæsthetic. The effects of these agents upon the pulse are first to excite above normal, and afterwards to quiet; as the inhalation continues, it sinks below natural down to forty or fifty per minute. At this point the desired object has been attained; the inhalation should cease. There is now no pain with the patient. All is composed,

calm, and serene. What is to be done, must now be done well and quickly. Just before the patient passes into entire unconsciousness there is sometimes considerable nausea and even vomiting, accompanied with, no doubt to the patient, a sensation similar to that of being under the influence of alcohol, or when an individual is said to be "dead drunk." All that is now needed to restore the patient to consciousness is to allow a plentiful supply of fresh air, accompanied by, if necessary, friction to the surface of the body, flipping it with a wet towel, or the application of heat to the same, with the internal administration of stimulants by the mouth or rectum. The gradual inhalation of ammonia (hartshorn) we have found a most speedy restorative under these circumstances.

There are various modes of administering chloroform and ether. The most simple means, as affording a plentiful supply of pure air, which should always be allowed as a dilutant, is by pouring a small quantity at a time upon a handkerchief, and holding near the mouth and nostril, taking care not to allow it to touch the lips or face. Dr. Channing proposes an inhaler, composed of pasteboard molded into a conical shape, near the open apex of which is placed a sponge to hold the liquid; between the sponge on the upper side and the base or mouth-piece is a valve for the escape of expired air. There is nothing to prove the advantage of this complicated apparatus over the simple method before mentioned.

The sensation produced by inhalation is different in different individuals, but the general effects at

first, as we have partly experienced upon ourself, are a tingling in the whole body, similar to that presented when the foot or arm is asleep, accompanied by a dizziness and rumbling noise in the head, like that of an approaching railroad train under full headway; or like unto the noise of a cotton factory or flour-mill when all the machinery is in motion. At first the patient is more or less amiable or boisterous, until presently she becomes perfectly quiet, calm, and easily managed. The most appropriate time for administering the anæsthetic, if requested by the patient or otherwise when it is indicated, is not until the second stage of labor has fairly set in, for it is in this stage, as has been already taught under the head of *Labor*, that the pains are most severe from pressure of the advancing head upon the soft parts, besides that accompanying the uterine contractions.

If possible so to arrange matters, the anæsthetic should never be given upon a full stomach, or when the patient has become very weak and faint from too long fasting, as in either case it may be accompanied with considerable trouble that would gladly have been avoided.

The general circumstances indicating the use of anæsthetics in labor cases are—

1st. When the pains are severe, short, and ineffectual, such as to restrain the voluntary bearing-down efforts of the patient. Here the anæsthetic blunts sensibility, and thus allows the contractions to go on, continuing longer, steadier, and more effectual, to the speedy termination of the labor.

2d. When the patient is of a rigid muscular body,

in which the dilating of the soft parts is usually attended with the most excruciating, aggravating, and thoroughly penetrating pains.

3d. When the patient is nervous, delicate, and incapable of enduring much fatigue. In these cases, by suspending sensibility, she is allowed to pass the ordeal of labor without pain or comparatively the least enervation.

4th. It is now almost generally used in convulsions, and in hour-glass contractions of the womb. Some contend that chloroform has entire control over and is powerful to neutralize both of these conditions.

Where there has been unusual hemorrhage in previous labors, or whenever it is indicated to excite uterine contraction, ergot may be given, as in ordinary cases, without regard to the anæsthetic. Dr. Channing thinks the infusion of ergot the best preparation to be used along with chloroform and ether.

HYDRATE OF CHLORAL.—This now popular medicine may be recognized by its being a white solid, somewhat resembling loaf sugar, though possessing granules somewhat finer, and having a sharp pungent taste and odor, in both of which it is nearly like that of the ripe melon. It is very soluble in water, with an equal proportion of sirup, the usual menstruum in which it is administered. This softens down its pungency and renders it more tolerable to be taken. It is gradually coming into general use as a substitute for opium and its salts—morphia, narceia, meconia, &c—on account of its having almost the same effects upon the system, except that it leaves no un-

pleasantness behind, as is the case with the opiate in most instances. It has, comparatively speaking, been but little used in this country yet awhile, though in the Maternity Hospital of Edinburgh it is used quite extensively to mitigate the pains of labor, and some attribute to it anæsthetic powers.

Chloral may be obtained by the prolonged action of chlorine upon alcohol, in which the former takes the place of the hydrogen of the alcohol; consequently it comes under the head of what are termed in organic chemistry *aldehyds*.

Though long known, chloral, until quite lately, was not used as a medicine, having hitherto had none of the peculiar properties attributed to it for which it is now so famous, for the discovery of which and its introduction to the medical world we are indebted to Liebrich, of Berlin. It does seem strange that after so many years of faithful service we should be required, in obedience to advanced chemical knowledge, to lay aside our old "sheet anchor," which possibly ultimately may be the case, and rear the chloral in its stead.

"Oh, thou Parnassus! whom I now survey,

Not in the frenzy of a dreamer's eye,

* * * * *

What marvel if I thus essay to sing?

The humblest of thy pilgrims passing by

Would gladly woo thine echoes with his string,

Though from thy heights no more one muse will wave her wing."

Having had some experience with the chloral in the treatment of diseases, generally when an anodyne or soporific was indicated, as well as those for

which it is recommended in this work, with the happiest results, it is well worthy and seemingly requires the special notice we have here given it.

MANAGEMENT OF CHILD AFTER DELIVERY.

Having reviewed the various complications to which the mother may be liable, both during labor and after delivery, we next proceed to the consideration of others, that may occur to the child under these circumstances.

It is an axiom in obstetrics, and a good one, that *meddlesome midwifery is bad*; by which is meant officious interference when none is indicated, and the labor, if left to itself, would terminate favorably to both mother and child, without any more aid than that ordinarily and peculiarly necessary in such cases. Therefore it is evident that a thorough knowledge of the subject is as essential in order to know when *not* to interfere, as it is to know when interference is required. But sometimes it may and does happen, even to those possessing all these qualifications, and who upon other occasions may be remarkable for their gravity, though now, from allowing themselves to be worked upon by the cries and anxieties incident to parturition, they lose their usual calmness, and, by becoming sympathetically excited, go to work, thinking it a crisis in which something ought to be done to hasten the delivery. Others, from a natural (it may be an affected) habit of headshaking innuendoes, will seek to impress upon the patient or those around her "that I must do so and so," and, "if it had not been for this or that, nothing

but fatal consequences awaited the mother or child." Thus, by continual unnecessary interference, perhaps, is brought about the very condition which of all things should have been, and which they gladly would have, avoided, could they have foreseen the trouble they were brewing; that is, an alteration of position, thereby prolonging the labor or injuring the child, either by disfiguring it in some way, or perhaps dislocating or fracturing some of its limbs in their premature efforts to extract it. Happily it may be said of the latter class there are now but very few of such San Grados and Gil Blas in the profession at large.

From whatever cause, if either of the above conditions shall have obtained, they ought to be discovered at once to the mother, and the proper means adopted to overcome them. If it be the luxation of a joint, it should be reduced, and the usual means applied to retain it; if a fracture, light splints and necessary bandages put on; and any other disfiguration of the child must be treated according to the nature and condition of the part and the indications present.

In face presentations there is likely to be a slight turgescence of that side which presented. A mild, stimulating lotion (French brandy or the tincture of arnica) will cause this to disappear in a short time.

The tumor sometimes found upon the head, caused by an effusion of serum or extravasation of blood under the scalp, and called *caput succedaneum*, will generally go away of its own accord, by being absorbed, in a few days; but the same means indicated above may be used if it is desired to hasten its de-

parture. Spirits alone, either whiskey or brandy, will answer the purpose very well, applied two or three times per day. Swelling of the scrotum, or bag, in male children, may be treated in a similar manner. This last condition, however, is not to be confounded with hernia, or rupture, which may sometimes be the cause of an enlargement in this region. If there is hernia, it should be reduced, and a bandage or compress applied to prevent its recurrence. The rupture is easily distinguished from the turgescient scrotum by being less firm, and presenting to the hand a feeling as if it were a bag of worms; whilst in the latter instance it is tense and translucent.

The child should be carefully examined, to ascertain if there are any imperfections—such as *imperforate anus* or *urethra*. These require surgical operation, and should be remedied at once, if possible, as the safety of the child is jeopardized by their continuance; as also should the deficiency known as *hare-lip* and tongue-tie, especially if they interfere with or prevent sucking. If they do not, the operation may be delayed until the infant has sufficiently recuperated the better to undergo the operation.

Hemorrhage from the navel may occur sometimes after it has been tied and the child dressed. It should be examined to ascertain the cause. If the cord has been cut into by the ligature, or the latter become loosened, another must be applied behind it. If from other causes, astringent lotions, or, what is better, perhaps, a solution of the perchloride of iron or plaster of Paris, (gypsum,) either of which may be applied to the navel, the latter allowed to

remain and harden. In cases where the above means fail to arrest the bleeding, another and more decided measure may be necessary, by passing two needles at right angles to each other close to the abdomen, and then applying the ligature behind them.

At all times the navel should be examined and frequently anointed, or at least every time the child is dressed. It usually drops off within three to five days, though sometimes not for nine or ten days. At the later period generally it is only adherent by a mere thread of tissue, which may be cut, especially if it is very offensive; but no harm will result from waiting until it drops off. It may be that after the string has been detached the navel will continue to weep a thin offensive fluid. In this case it should be well examined, and the cause removed, which is likely to be a portion of decaying tissue retained within its folds. Afterwards wash it out well with tepid water and Castile soap. If inflammation has been excited within the folds of the navel, in addition to the washing it may require the application of a solution of sugar of lead, sulphate of zinc, or nitrate of silver; the latter about the strength of from eight to twelve grains to the ounce of water.

NURSING, ETC.

It is customary with some, particularly nurses, immediately after the child is dressed, to commence feeding it, or giving it castor oil, or butter rubbed up with sugar, or sage or catnip-tea; none of which are necessary, and therefore should be avoided.

The best thing for the child, and mother too, is, when she becomes sufficiently rested, to put the child to the breast, from which a three-fold advantage is derived. The child at once takes hold of the nipple, thereby learning to suck, and at the same time obtains a fluid—*first milk*—called also *colostrum* and *protogala*. This is composed of numerous yellowish granulated corpuscles of butter, serum, and casein, which will have the desired purgative effect upon the infant, removing the meconium, a greenish or deep black-colored viscid substance, made up of mucus and bile. Besides, it insures the early development of the nipple, and at the same time excites the milk gland to the performance of its function of furnishing subsistence for the child, which it usually does abundantly in from twenty-four to seventy-two hours from the time of delivery, during which period the healthy infant, other things being equal, will pass most of the time in sleep. If it should rouse up, and become peevish, fretful, and dissatisfied with the breast, it may be necessary to allow something to pacify it, when a little warm sweetened water will answer the purpose. This should be administered by dipping the finger in the menstruum, and not a spoon, as is customary, and then placing it into the child's mouth, allowing it to suck the fluid from it; then repeat the process as often as may be necessary. A spoon, it is true, is a very useful, smooth instrument, and as harmless, perhaps, as anything of a hard texture that can be used for feeding upon ordinary occasions; but it must be remembered at the same time that very few things are more tender and sensitive than the tongue, lips, and lining membrane

of a new-born infant's mouth, through the portals of which nothing but what has been compounded in the laboratory of nature ought to pass. And until it has become somewhat hardened by contact with the fleshy nipple of the mother, even the spoon, by its free use, at least, may and often has been the cause of great trouble in bringing about that condition usually denominated *thrush*, or sore mouth.

Drenching the infant, too, with castor oil, or other unsavory purgatives, may serve very well to give it a foretaste of the nausea it may have to experience through the life upon which it has just entered. But we question very much its propriety or philosophy as a hygienic measure, when the infant's organs are all tuned to health, and if let alone would continue to work in that beautiful harmony designed by nature to attend them in the performance of their respective functions.

To stimulate the new-born child with ardent spirits, when there is nothing to indicate their use, but the whole periphery of the body is redolent and glowing with the active vitality within, can only be destructive to the tender tissues through which already

The heart with natural vigor sends
The ruby liquid to each artery's ends.

Therefore all of these should be avoided, as they are altogether superfluous and unnecessary, and more apt to induce a worse condition than that which apparently they are intended to allay. Besides, their necessity, if there be any, is obviated by putting the child early to the breast, where and when, as has already been stated, it will receive all the stimulus and all that is required to purge and prepare it to

receive that other nourishment—the all-sufficient—which in due time will be ready, that it may partake freely thereof; and from that font alone, other things being equal, it can obtain *all* the nutriment it will require until it has attained its third or fourth month, after which period it may not be out of place to allow it some additional simple food, such as milk-crackers, soaked in sweetened water, or fresh cow's milk, and arrowroot, or whatever simples of the same nature may be fancied by the mother or careful nurse. This, besides affording rest for the mother, the need of which, perhaps, by this time she may begin to feel from nursing so frequently, will prepare the child to some extent for the change that is to occur when it is to be separated from the breast entirely.

Few things can be more trying and troublesome, besides calculated to weaken and break down the constitution of the mother, than to have her infant tugging at the breast all the night as well as all the day through; yet many submit to it, and allow themselves to be “dragged to death,” as they sometimes express it, when it could have been easily avoided if proper means had been instituted at the right time. For no creature is more docile than the human offspring in its infancy, and it can be so taught as at regular intervals—say four, six, or eight hours, or longer if necessary, as it becomes older—to expect the breast; and when so taught it will, with the utmost precision, soon learn to give notice of the arrival of the period, if there be no preparations looking towards the approach of the same on the mother's or nurse's part.

Thus the child can be used to having its last application to the breast just before the mother retires for the night, with which, after awhile, it will learn to be satisfied until early morn, thereby allowing her an opportunity to obtain refreshing and reinvigorating sleep—

“Tired nature’s sweet restorer,
Balmy sleep.”

Sometimes, from general debility, weakness of body, or from an extremely sensitive or nervous temperament, the mother’s milk may be poor or vitiated, or the glands may not secrete a sufficient quantity to satisfy the child’s hunger.

In either case it will be necessary to secure a nurse, or “raise the child by hand,” as it is termed. In all cases, if circumstances will admit, the former is preferable, when a robust and healthy one can be obtained.

WET-NURSE.

In the selection of a “wet-nurse,” her general appearance and temperament, together with the age of her child, and its general appearance, condition, and health, will usually be a sufficient criterion, other things being equal, by which to judge of the qualifications necessary in a good nurse. She should be entirely healthy, her breasts full and ample, and her confinement should have occurred about the time, or very nearly thereto, with that of the mother whose child she is to nurse. She should be free from any scrofulous, syphilitic, or consumptive taint. Besides, she should have a gentle, amiable, and self-sacrificing disposition, willing to enter upon her duties

with zeal, and not as if from necessity, or with a disposition to impress the mother of the child that she is to have in charge with her own independence, or that she, the mother, is to any extent dependent upon her, the nurse. If she possess these accomplishments, with the necessary physique, she is one greatly to be desired, and can always find a pleasant home whenever such services are required.

But sometimes it may be, and it is frequently the case, that such a one cannot be found, and the mother is afraid to trust her darling to a nurse not having all or some of these qualities to recommend her, or from other causes she prefers to trust to herself the care of—

RAISING THE CHILD BY HAND.

When this is the case, the object should be to prepare the food for the child in such a manner as that it may approximate as near as possible to the mother's milk. This may be done very nearly by preparing cow's milk, which differs only from the human milk in the quantities of some of its constituent elements, as may be learned from the following table of MM. Vernois and Becquerel:

	Woman's milk.	Cow's milk.
Specific gravity.....	1032.67	1033.33
Water.....	889.08	864.06
Solids.....	110.92	135.94
Sugar.....	43.64	38.03
Casein.....	39.24	55.15
Butter.....	26.66	36.12
Salts.....	1.38	6.64

It will be observed from this table that the human milk is of a lesser specific gravity; that it is com-

posed of less solids, principally in casein, and has more sugar than cow's milk; therefore, in order to make the latter approximate more to the former, it will be necessary to dilute it with water, and add sugar of milk, or crushed sugar, lime-water, or water in which the carbonate of potash, in the proportion of one-half to a whole grain to the ounce, has been dissolved. The latter have a tendency to neutralize the redundancy of casein in the cow's milk, which, on account of its being almost indigestible, is the principal objection to it in feeding infants.

This mixture—a sufficient quantity, about four ounces, enough for one time only—should be prepared by putting in a bottle, previously well-washed and scalded, which should then be put into a warm-water bath until it reaches the temperature required, or that of the milk when it first flows from the breast. With this the infant may be fed, at intervals of every three or four hours, during the first two months. If the child should be satisfied before the four ounces be consumed, the bottle may be removed, emptied, well-cleaned and scalded, and put away until again required. It may be best kept in cold or tepid water during the interval of repose, to insure cleanliness and freshness.

The following formula for preparing the cow's milk for infants is suggested for simplicity and convenience:

Take <i>fresh</i> milk, from a good cow.....	2 ounces.
lime water, (clear).....	1 “
water that has been boiled.....	1 “
sugar of milk and <i>loaf</i> sugar, a sufficient quantity to sweeten.	

The sugar of milk can be obtained from any apothecary. If located where it cannot be found, the *loaf* sugar alone may be used in all cases in preference to any other kind. If desirable, this mixture can be improved at times by the addition of a little cream.

Sometimes the milk of one cow will disagree with the child, and another will be quite wholesome. In this case a change may be made in the milk or cow, until that which will agree with it can be found. Not unfrequently, from some cause, to some children, cow's milk apparently is not at all wholesome. To know if this is the case the diet may be changed for a day or two, by giving beef tea, veal broth, gum-arabic, or barley-water, and then resume the milk diet. If it still continue unwholesome, why then the change should be made from cow to calf, as above mentioned, until a suitable one has been obtained from which to get the necessary supply. Goat's or ass's milk may be tried with the same purpose in view, or the infant may be kept on the diet just indicated.

Too much caution cannot be exercised in keeping the bottle clean in the manner pointed out above, as cleanliness in this respect is very important, and the child's health is dependent upon it to no little extent.

NURSING-BOTTLES.

Nursing-bottles are of various kinds, shapes, and forms, so that almost any fancy can be suited in this respect, or one can be improvised from any kind of a bottle, by fastening an india-rubber nipple over its

mouth; these may be found in all sizes to suit at the drug stores generally. But the neatest, best, and most popular arrangements of this kind, at home or abroad, are the patents of the Messrs. Maw & Son of London, Botham's of Sheffield, England, and our own Eureka Nursing-bottles. The advantages of these bottles are, that they have a glass tube perforating the cork and extending nearly to the floor or bottom of the vessel, whilst at their upper ends are attached an india-rubber tube, about six inches long, with a nipple at the end, just behind which is a shield, to prevent its being drawn too far into the mouth. With either of these bottles the child can be placed in a proper position, with the head and shoulders elevated, in its crib, cradle, or bed, and nurse itself cosily; but care should be taken not to allow it to draw from the empty bottle, or after its lacteal contents have been exhausted, or it will swallow air, which will cause the stomach to become distended with flatus, giving rise to that well-known condition—

COLIC.

The occasion of this ailment prevailing so much in some children, at the breast as well as the bottle, may be, in a great measure, attributed to the above fact, arising either from the rapacity with which the infant seizes the nipple between its lips at the onset of nursing, drawing and swallowing before the coveted liquid flows, or from being retained at the breast after the latter has become exhausted, and from which it now obtains nothing, but swallows a portion of the air drawn through the nostrils. By attention to these

apparently simple things much annoyance to the mother, pain and physic to the baby, may be spared. But colic may occur at times from other causes, as foul stomach, from costiveness, or diarrhea.

Treatment.—In the former case much relief may speedily result from a little jolting upon the knee, in addition to which may be given, internally, *anise*, *flag-root*, or *catnip-tea*, or the compound anise powder. If it proceed from costiveness, a grain or two of rhubarb may be added to the anise; if from diarrhea, four to ten drops (according to age) of the *elixir paregoric*, in either of the above-mentioned teas or in sweetened water, to which may be added a few drops of French brandy. These will, in most instances, prove efficient in removing the flatulence or costiveness and checking the looseness of the bowels, if used respectively as directed.

WEANING.

From the period at which the child has reached the third or fourth month of age its usual diet may once or twice a day be substituted by other food, such as the arrowroot, tapioca, and panada, or other easily-digested simple substances; so that, as the time approaches for it to be separated entirely from the breast, it may be accomplished without much trouble—that dread of all mothers. The period at which weaning should take place varies according to circumstances; but, as a general rule, if healthy, when the child has reached the age of one year is about the proper time for its separation from the breast, though it is too much the custom

with many mothers to protract nursing far beyond this period.

If the child has been taught to take other food at intervals, as above recommended, the process will be attended with little or no difficulty. The periods for its taking the breast may be gradually reduced from *four* to *three*, *twice*, and *once daily*, and then, by sufficient feeding at regular intervals, it may be soon led to forget the breast altogether. This mode, if persevered in only a short while, will be found easy, more satisfactory, and far more preferable to those other means usually adopted by some parents, such as applying aloe and other noxious substances to the nipples. These may be successful, but not in less time than the more rational method above pointed out; because in the one the reason and judgment of the child are appealed to, powers which it is capable of exercising even at this tender age. At the same time it is being inducted and instructed in the principles of substitution, by which it learns thus early to submit to other changes in after-life that may be found necessary for its comfort, convenience, and welfare, if reduced to its understanding. The other mode is evidently more calculated to fret, excite, and develop some of those perverse qualities of temper to which the child may be already too prone by nature, and which may have considerable influence for woe upon its future life, temporal and eternal. Therefore, it were better not thus to arouse them.

Sometimes, from various causes, it may become necessary to wean the child earlier than the period above mentioned: such, for instance, as great weak-

ness and debility on the part of the mother, tending to vitiate the milk and render it unsuitable for the child as a nutriment; or if pregnancy should take place; or the mother may be attacked with some acute disease, by which she may be for some time unable to nurse the child. From any of these conditions supervening, when a suitable wet-nurse cannot be obtained, the child must be weaned at once.

On the other hand, it may be required to prolong the period of lactation, owing to tardiness on the part of the child in obtaining its teeth, or from a too sensitive condition of its digestive system, depending upon the process of dentition, by which it is incapable of tolerating any other food than that derived from the breast. Either of the above conditions should have some weight in postponing the time of weaning until the difficulty has passed away, provided none of those before-mentioned, to which she is liable, shall have occurred to the mother.

It is a habit with some mothers to nurse their children until they are two or three years of age, when from no cause is it in the least required; and we call to mind two instances of the kind at present (there may be many more) where the children have been kept at the breast for even a longer period than three years. for no other reason than that it was fancied to be better for the child's health; when a glance at either mother or child was sufficient to discover its debilitating effects upon both: The child, by its pale, attenuated appearance, that its stomach was being filled by a fluid, not milk, that supplied, for the time being, the place of a more nutri-

tious meal that should have been given, and which its system really demanded. The mother, by her relaxed and debilitated condition, accompanied with nervousness, frequent palpitations of the heart, and general lassitude, gave evidence that she was the victim of a vain hallucination, which, while preying upon her own life, was abridging that of her offspring. In many instances the object of this prolongation of lactation is to prevent pregnancy, as it is vainly supposed it will, but which is a fatal error, and there is no vestige of evidence to prove such to be the case; or, if it could be, the effects of the nursing upon both mother and child, by laying the foundation for a more dreadful disease, would be ten-fold worse than that temporary condition which is sought to be avoided. Therefore, such a practice is to be condemned and discouraged by all mothers who have at heart the interest and future well-being of their offspring and themselves: to ask what mother has not would be unnecessary and superfluous.

DISEASES OF CHILDREN.

In the diseases of children, in many instances, very important circumstances are frequently overlooked or made light of, which, if carefully considered, might prove to be the key wherewith to unlock a door that would often throw a flood of light upon the case, by which what was apparently complex will be found susceptible of easy and successful management. But, if otherwise treated, merely upon general principles, according to common indications, the consequences must often prove dangerous, if not

disastrous and fatal, unless perchance the tender patient luckily escapes, notwithstanding the ordeal of nauseous medicines it may have to pass through, in addition to the ailment with which it has to contend.

One of the most prominent circumstances above referred to, and which is so often overlooked, or its principles misunderstood, is that of nutrition and diet, some of the rules governing which we have endeavored to point out in the preceding article upon the management of children.

A child, for instance, may at first be well and hearty, but after awhile begin to undergo a change in its general appearance and disposition, accompanied by manifestations of uneasiness immediately after eating, arising from an over-crowded stomach, or from something the latter is incapable of digesting. The food not being properly assimilated, these symptoms continue more or less in intensity, until the child gradually begins to waste away, with its abdomen greatly enlarged in proportion to the other parts of its body; its skin becomes pale, the muscles generally relaxed; its nervous sensibility increased; it is fretful and peevish, indifferent to play, or soon becomes tired and weary from the least exertion; it is incapable of walking, if it walk at all, any ordinary distance; its feet are always cold; it is sleepless, and continually thirsty and feverish, especially at night; the urine is scanty and high-colored, or pale and copious; the discharge from the bowels frequent and light-colored, alternately, or often, at the same time, hard and watery, and always accompanied with a considerable escape of flatus. The child may apparently feed well, or be continually hungry, although

its stomach is foul, as indicated by sour belchings and the occasional vomiting of a pale, acid, frothy fluid, which sometimes may be tinged with bile. The parents, wondering why this great change has taken place, are apt to suppose "the child has worms," and all the neighbors say the same; and probably after trying, without success, all the vermifuges extant, medical advice is sought, and it may be that the attendant concludes at once, from the general indications and a superficial examination, and probably from the supposition of all around, who say, "Doctor, I believe the child has worms," that such may be the case; or probably it is determined that its liver, brain, heart, kidneys, or, if it has a cough, that its lungs, are affected, and prescribes accordingly; or it may be made out a case of general debility, and a course of tonics and liberal diet are thought necessary, and so directed: when, in fact, the child's diet is already too liberal and promiscuous, or inefficient and hurtful; and if this were inquired into, altered, and properly regulated, the child would be found to thrive with little or no medicine at all.

The above is no fancy sketch, but the type of many instances of the kind, and is drawn from life in cases that have come under our own immediate charge, two of which are here mentioned in detail particularly, as they had been previously attended during the past summer, and in which both, being almost similarly affected, had been put upon a course of tonics, without deriving any benefit therefrom; but, as the parents stated, they "were growing worse every day," from no other cause than that the attendants had neglected to inquire into the previous

manner in which they had been fed, or, if they did, had failed to prescribe and have carried out a proper regimen in either case. Both of these children were nearly about the same age—one seventeen and the other twenty months old. The younger had not been weaned, although the mother was about four months' gone in a second pregnancy. In this case it was evident the child derived no benefit from the fluid obtained from the breast, which only served to gratify its appetite for the time being, by filling the stomach and supplying the place of a more nourishing food that might have been given it, for in a little while after nursing it would be hungry again. The mother "not having enough milk for it," as she expressed herself, would allow it to have almost anything to eat that happened first at hand to satisfy and pacify it, without regard to the child's age, feeble digestive powers, or quality of food necessary for it.

In the other case the same conditions had nearly obtained, except the child had been weaned, and the food it had been allowed was altogether unsuitable to the then present state of its digestive system.

The only treatment adopted in these cases was in accordance with what has been stated above: By allowing nothing but farinaceous substances, with fresh cow's milk and lime-water, beef tea, veal and mutton-broths, and a mixture similar to the following, of which a half to a full teaspoonful may be given, in like cases, every four hours during the day:

Oil of turpentine.....	1 drachm.
Pulverized gum arabic.....	2 scruples.
Cod-liver oil.....	1 drachm.
Peppermint-water.....	2½ ounces.

It is not to be understood that the different dietetic substances were given altogether, or in the same day, but were alternated, one with the other, from day to day. Olive or castor oil may at times be substituted for the cod-liver oil in the above mixture, and the latter given alone, in doses of four to eight drops, three times per day, according to age. A powder—composed of mercury, with chalk and anis powder, half to one grain of the former to two of the latter—may occasionally be given along with the above. These medicines are to act as slight stimulants and carminatives to the weakened digestive apparatus, and assist in the assimilation of the food recommended.

The children, at the time of this writing, are well and hearty in looks, and in fact as much so as are to be found anywhere. As has been already intimated, we have dwelt thus particularly upon these cases only as they are the type of many, and to impress the importance of the facts related upon the minds of those most interested, and for no other purpose, in hope that it may be the means of leading to a proper investigation and understanding of the subject, when opportunity is offered, whereby many a little one may be saved much unnecessary suffering, the hearts of their parents made to rejoice and be glad that their child, but now almost lost, has again been restored them, renewed in vigor and elasticity of mind and body, with the rosy bloom of health once more lighting up its form and features; whilst you, who may have been the instrument of so much good, may be the recipient of their heartfelt thanks and lasting gratitude.

DENTITION AND ITS COMPLICATIONS.

As the above-related symptoms are more or less present during the period of dentition, and to some extent may be dependent upon that process, we proceed to the consideration of that subject as next in order.

ERUPTION OF THE TEETH.

The first indications of the formation of teeth in the infant are by the gums, which hitherto have been thin and presenting a sharp ridge, now becoming thicker and swollen as the dentine deposition increases, accompanied with considerable irritation, and consequently an increased flow of saliva. The teeth are formed in shut sacs, penetrating the gums slowly from within outwards and upwards or downwards, according to the position they are to occupy in the upper or lower jaw. When fully evolved they (the deciduous or milk teeth) are twenty in all—eight front, four in the upper and four in the lower jaw, which are called *incisors*, or cutting teeth; next to these, one on either side, below and above, the four *canine*, or dog teeth, commonly known as the eye and stomach teeth; and next to these the eight *molars*, or grinding teeth, four above and four below. The period at which they first appear and become fully evolved varies in different children, but usually the process takes place and is completed between the sixth month and the third year. There is no regularity in regard to the order of their appearing, except in the incisors. Those in the middle of the

lower jaw penetrate the gum first, and are soon followed by those of the upper in or about the sixth or seventh month; then, at the ninth month, the lateral incisors; at the twelfth month, the first molars; at the eighteenth month, the canine; and in the second and third years, the last of the molars. These are about the average periods of their evolution, though, as above stated, they may differ in different children.

Each tooth is divided by physiologists into three parts, consisting of a body, neck, and root. They are composed of three different textures—

First. The *ivory* or *dentine* makes up the largest portion of the whole of the tooth, and constitutes its form. It is of a dull white color, and somewhat harder than bone. Although it presents a dense, compact appearance, it is composed of minute tubes, termed *dental tubuli*, which are 1-10,000th of an inch in diameter. They open into the pulp cavity, and radiate from it in almost parallel lines, terminating in minute cells or loops. They contain neither vessels nor nerves, it is supposed.

Second. The *enamel* incrusts the body of the tooth, and, being the hardest, it is thickest upon the grinding surface, which it covers; then, falling down on either side, it tapers, terminating at the neck in a thin layer. It is made up of six-sided radiating prisms of about 1-5,600th of an inch in diameter. Like the dentine, it apparently possesses neither vessels nor nerves.

Third. The *cementum* or *crusta petrosa* forms a thin covering for the root. Its structure is similar to that of bone. It is the increase of this substance, in ad-

vanced age, which gives that projecting appearance to the teeth of old persons.

Each tooth has a central cavity, containing, besides its pulp, an artery, vein, and nerve, which enter it at the apex of the root. This cavity becomes diminished in the adult by the formation of cementum upon its inner walls; thus preventing the exposure of the pulp from the wearing away of the body of the tooth.

The principal complications dependent upon dentition, caused by the great change that the whole organism of the infant is undergoing in its transition state from an exclusively milk to a more complex diet, are diarrhea, convulsions, and vomiting.

DIARRHEA. (*Greek, dia—through, and reo—to flow.*)

This is not exclusively a disease of dentition, but, often occurring in this connection, it is usually denominated *cholera infantum*, or *summer complaint of children*, and *teething*.

The second summer is the period generally in which they are most liable to the disease. Besides dentition, the disease may result from a close, impure atmosphere, acting directly upon the skin, and through it indirectly upon the digestive system.

It usually commences with vomiting, attended with profuse, light-colored, and thin watery discharges from the bowels. At the same time the pulse is quick and feeble, the tongue white and slimy, the skin hot and dry—the head and abdomen especially—whilst the extremities, which preserve their natural temperature for a while, soon change, becoming cold. Delirium sometimes occurs about this time,

and is recognized by the wild look of the eyes, whilst there are frequent tossings of the head to and fro, with attempts to bite at imaginary or real objects. The child becomes not unfrequently greatly prostrated in a few hours, and may die suddenly from exhaustion; but, as a general rule, the case continues for some days, or even weeks, with great emaciation; the eyes become languid, sunken, and the whole countenance changed; the lips thin and dry; the nose pale and pointed; the skin upon the forehead tight and shiny. If the child obtains no relief, it soon falls into a half comatose condition, with the eyes half open, whilst the discharges from the bowels are involuntary and offensive, the skin cold and clammy, the abdomen tympanitic or distended and tight; all of which symptoms continue until death comes to relieve the little sufferer of all its pain and trouble.

In the *treatment* of this disease the first thing to inquire into is the previous diet of the child. If still nursing, it should be confined exclusively to the breast. If it has been weaned, the diet should consist of cold mucilaginous drinks—such as arrowroot, ground rice, tapioca, milk, lime-water, and pounded ice, and the following powder given every three or four hours:

Take hydrargyrum cum creta, (mercury,	
with chalk).....	3 grains.
creta preparata, (prepared chalk)...	8 “

Make into 6 powders.

To be followed with a mixture, composed of subcarbonate of bismuth twelve grains, and two ounces of fennel or peppermint-water, of which a teaspoonful

may be given every two or three hours. At the same time the "spiced plaster," made of powdered allspice and cloves, wet in hot spirits or vinegar, may be applied to the abdomen, to assist in relieving the tension. The above mixture may be alternated by giving the following:

Take sulphite of soda	4 grains.
aromatic sirup of rhubarb	} of each 1 ounce.
mint-water	

Dose, same as the above.

The gums are to be examined. If much swollen and hot they should be lanced, by cutting well down upon the teeth. This, if it is to be done at all, must be done before the child becomes too much prostrated, or it is too late to be of service. The operation, parents may be assured, is entirely painless, and there is no danger attending it in one case out of a thousand. To secure quiet and repose to the little sufferer, a mixture of bromide of potash—twelve grains, in two ounces of simple sirup and two of peppermint or cinnamon-water—may be given. Dose: a teaspoonful about every four hours.

The apartment in which the child is kept should be well ventilated, and, if the case is a protracted one, when the weather will permit, the child may be taken out into the fresh air in the morning and early evening. The turpentine mixture, heretofore given, will be found beneficial in this complaint.

CONVULSIONS.

The convulsions of infants frequently depend upon disordered dentition, but may proceed from other

causes, such as an over-loaded stomach, or from some indigestible substance, or perhaps worms, producing an irritation in the stomach or other portions of the alimentary canal. The first indications of their approach are a twitching of the muscles of the arms or legs and face, and a sudden rolling of the eyes upwards. Sometimes convulsions may occur without any of these premonitory symptoms being manifested.

The treatment consists in the application of cold water to the head, or the plunging of the whole body into a warm bath. If the paroxysm continues, an injection, consisting of olive or castor oil, or lard, in about four ounces of tepid water, may be thrown into the bowels, after which a leech to each temple and hot applications to the extremities. These remedies will generally prove efficacious in restoring sensibility, if applied in the order above detailed, after which a purgative may be given, followed by the bromide of potash mixture, as given in the previous case. The gums should be examined, and if hot and swollen, they should be lanced at once.

VOMITING.

Vomiting of itself is not a disease, nor is it to be regarded as anything serious, unless accompanied with other symptoms. Most of children will vomit immediately after nursing, which may be looked upon as a favorable circumstance, as by it the stomach becomes relieved of over-distension. If it had continued, it might be the cause of considerable discomfort to the child, if it did not produce convulsions.

But repeated vomitings are very weakening, and soon prostrate the patient, and may be dependent upon some irritation of the brain or its coverings, as will be observed more in detail under the head of *Hydrocephalus*.

It can usually be relieved, when there is no complication, by applying mustard, mixed with flour, to the region of the stomach, cold to the head, and pounded ice given internally, with lime-water and milk. If there is much prostration, a small quantity of French brandy and water or cold milk-punch will be found advantageous and strengthening. The sub-carbonate of bismuth will sometimes succeed in checking vomiting when all other means fail. It may be given in connection with the above, in one-half to one-grain doses, in water, every hour or two.

INFANTILE REMITTENT FEVER.

This disease may attack children at any age, from nine months to twelve or fourteen years. When occurring at the earlier period, it may, to a great extent, be dependent upon dentition, though it is mostly attributable to errors of diet. By some it is considered to arise from miasmatic influences, and by older or earlier writers to depend upon worms, and is called by them *worm fever*; probably from the fact that these vermin are sometimes voided by children affected with this disease. They may be considered a complication rather than a cause of the disorder.

The fever usually occurs in one of two forms, *acute* or *chronic*. The former attacks the child suddenly.

The bowels generally are costive, but sometimes irregular, and the discharges thin and offensive, the tongue coated white, the urine pale. The fever comes on in the evening, preceded by a chilliness or rigors. When at its height, the child is drowsy, its face flushed, the temperature of the whole body increased, with the hands and abdomen hotter than any other portions of the same. If the child sleeps, there are moanings, sudden startings, and screaming accompanying it; the pulse varies from one hundred and twenty to one hundred and fifty, more or less, per minute; the fever usually continues from six to nine hours, when it begins to abate; it is then succeeded by a slight perspiration and quiet sleep for awhile. When the child awakes in the morning it is apparently better, and perhaps has some appetite, and becomes playful. But toward evening indications of the approach of fever begin to manifest themselves again. As they continue, the fever threatens to be more violent than on the day before. It may now be accompanied with vomiting, great headache, and sometimes pain in the bowels. In the very young, convulsions may take place at this stage of the disease. Each succeeding day, unless arrested, the paroxysms assume a more violent and threatening aspect, or, after a day or two, they may moderate, and gradually run into the *chronic form*, in which the same symptoms continue, but with less violence, or even so insidious as to proceed without attracting particular notice, until the child shows evidence of declining health by wasting away. The abdomen becomes enlarged, whilst the child's strength gradually fails. The bowels, at first cos-

tive, may be succeeded by a painful diarrhea, in which portions of the food sometimes will be found discharged undigested. The tongue is coated, but not dry; the pulse varies from one hundred and twenty to one hundred and forty, usually the former in the morning and the latter in the evening. If the disease is not arrested, the symptoms continue unabated until the child becomes attenuated, wastes to a mere skeleton, and then dies really from inanition.

In the *treatment* of this disease, attention is first to be directed to the condition of the bowels. If costiveness prevails, they should be well opened by the administration of a purgative; the best in this instance, probably, is the following:

Take calomel	1 to 3 grains.
pulverized rhubarb or jalap.....	1 to 4 "
pulverized anise-seed	1 to 6 "

The greater or lesser quantity, according to age; made into one powder and given in sirup.

If this should fail to act speedily in six or eight hours, it may be followed by a tea or tablespoonful of castor oil. After this, in the absence of fever, the sirup of quinine, made by suspending the quinine in simple sirup, in the proportion of two grains of the former to an ounce of the latter for a child nine months old, and from two to twelve grains of quinine in the same menstruum for those older, according to age, of which a teaspoonful may be given every two to four hours. If taken in time, these remedies will generally cut short the attack in forty-eight hours. If the disease continues, or has made further inroads upon the system, in addition to the above the diet

should be inquired into and properly regulated. A nursing child should be confined to the breast. If it has been weaned recently or for some time, and is very weak and debilitated, a light and nourishing diet should be allowed, with the administration of the turpentine mixture, as recommended under the head of *Diseases of Children*, in the opening of this section. The cod-liver oil may be given alone, and not in the mixture, in doses of six drops to a teaspoonful three times per day, according to age. In addition to these internal remedies, in the chronic stage the child may be put into a tepid salt-water bath once a day at first, then after awhile every other day. In addition to the salt, or as a substitute therefor, chamomile flowers or red-oak bark may be added to the water. The child should not be allowed to remain in the bath more than *four* minutes, as a longer period is apt to prove somewhat enervating. When taken out of the bath the child should be briskly rubbed until the skin is perfectly dry, then dress it and wrap comfortably in a blanket and put to bed, when it will generally fall into a sound sleep, from which it will awake refreshed and more vigorous. If the child improves, the baths may be reduced to but one a week. The effects of these baths with children are wonderful, and it is astonishing how rapidly they improve under their use from this most-generally tedious and fatal complaint.

The only tonics needed in this connection are suitable exercise in the open air, with small doses of quinine, as above directed, which act as an anti-periodic, and at the same time strengthen and give

tone to the whole system. Both of these are most excellent adjuvants to the baths.

The turpentine is not only useful as a slight stimulant to the mucous membrane of the bowels, thereby removing the flatus, but it gently stimulates the kidneys, and will destroy and expel any vermin that may infest the stomach or intestines. For the tympanitic and enlarged belly the best application is the *oleum camphoræ*, to which a few drops of turpentine may be added, rubbed well over the abdomen two or three times per day. The latter in the meantime should be supported by a flannel bandage, worn continuously and tolerably tight around the body. The bandage should be wide enough to extend from a little below the hips nearly up to the breastbone. It may be made with gussets to fit over the hips, and tied behind with loops, or carefully and smoothly pinned on either side of the spinal column.

HYDROCEPHALUS.

Acute inflammation of the coverings of the brain, or tuberculosus meningitis.

The *second* of these terms—acute inflammation of the coverings of the brain—expresses the true condition in this disease, and the *first* that resulting from the second, *or water on the brain*; whilst the *third*—tuberculous deposition in the coverings of the brain—indicates a predisposition to the tuberculosus diathesis; but the disease is generally recognized and described under the caption here given it—hydrocephalus—and manifests itself in one of two forms, viz, *acute* and *chronic*. The *former* may be

subdivided into *three stages*. In the first stage the symptoms somewhat resemble those of the infantile remittent. There is headache, vomiting, costiveness, the urine scanty, high-colored, and thick, with fever occurring at alternating periods, in which the temperature of the head is greatly increased in proportion to the body. The tongue is coated, but not usually dry; the eyes are suffused, with the pupils contracted. Unable to sit up or dreading to be lifted up, the child cries and reaches out to its crib to be laid down, and then almost continuously means and rolls its head from side to side upon the pillow. It sleeps but for a very short time, in which it is restless and excited; in which condition it is liable to fall into convulsions at any time; or the excitement may somewhat subside, and the disease pass into the *second stage*. In this stage great drowsiness supervenes, with the pupils of the eyes dilated and insensible to light, giving a steady vacant stare, whilst the balls are turned to either side. These, other things being equal, are unmistakable symptoms of the child having passed into the second stage of the disease. The pulse diminishes in frequency and power. There is now considerable tremulousness of the hands and arms, which are usually raised to the head, accompanied with a constant twitching of the muscles of the face. The child, frequently rousing from its stupor, cries as if in great agony, and thus passes into the *third and last stage*, in which convulsions of a part or the whole of the body take place. The pulse becomes small and frequent; the pupils more dilated; the skin cold and covered with a clammy sweat; the breathing is heavy; the dis-

charges from the bowels are involuntary and very offensive. The little patient now becomes entirely comatose, and may die in a brief convulsion or pass quietly away from earth to heaven without a single struggle.

The *treatment* of this variety must be active and decided from the outset, as there is little hope of recovery if the disease passes into the second stage: active purges and leeches to the temples, (some recommend bleeding from the arm, even in very young children,) ice to the head, warmth to the feet, and blisters back of the neck. If the disease does not yield to these measures, and passes into the second stage, the probabilities of recovery are few indeed. Should an abatement of symptoms take place, the treatment must be moderated accordingly, and the patient put upon a light nourishing diet, *slight* stimulants, and *mild* tonics, until all danger is past and convalescence evident, which will soon follow.

The *chronic* form of hydrocephalus may exist from birth, or not appear until after a few months, or even years. It is manifested by a gradual enlargement of the head, which may continue until it attains an enormous size. This enlargement is owing to an accumulation of fluid within the cranium, distending it and separating the bones, preventing their ossification and union, thus leaving the fontanelles enlarged, and covered only with membrane. One case of this kind has come under our notice, in a child three or four years old, in which the head was larger and apparently weighed more than the whole remaining portion of the body. The additional symptoms attending this malady are a loss of flesh,

great dullness and obtuseness of intellect, with evident manifestations of great pain in the head. There are only two ways of treating this form: that is, compression of the head, by bandaging it, or by puncturing at the fontanelles, allowing the fluid to escape, after which the bandages may be continued. Happily this variety of the disease is very rare, as there is little hope of recovery.

APHTHÆ, OR THRUSH.

Infants and more advanced children are most liable to this disease, although it may occur at any age. It is recognized by the presence of small, round, white specks on the inside of the lips, cheeks, roof of the mouth, and tongue. They are formed by elevated portions of epithelium covering a drop of serous fluid, and as they fall off, the surface exposed has a reddish or raw appearance. They succeed each other at different intervals, in greater or lesser crops. The mouth is hot and tender, so that sucking cannot be accomplished without pain. In attempts to nurse, the child no sooner grasps the nipple than it lets go again, with crying and fretting. Sometimes the disease is accompanied with constitutional symptoms: fever, drowsiness, colicky pains, flatulence, and diarrhea. The stools are green and slimy, and sometimes very acrid, which produces a redness and tenderness of the anus, giving rise to the common idea that the disease has gone through the child. The cause of this disease in infants is frequently owing to a too free use of the spoon, as before intimated when treating of the management of children, and is most often

found in those children raised by hand, though it may depend upon other causes, such as bad diet, impure air, and neglecting to wash out the child's mouth, which should be done, in health, once a day at least, with tepid water. It is not attended with danger, unless it assume a low form of gangrenous ulceration, which it does in some constitutions.

Treatment. The mouth should be well washed with tepid water, after which with a solution of sulphate of zinc in rose-water, about the strength of fourteen grains of the former to an ounce of the latter, three or four times per day. In addition to this, the well-known domestic remedy of borax, sage, and honey may be all that is necessary, if the disease is met at the beginning. In its more advanced stages, and attended with fever, the following may be given:

Take hydrargyrum cum creta..... 2 grains.
 supercarbonate of soda..... 1 “

Mix and divide into four powders.

One to be given in any menstruum, such as sirup, honey, or sweetened water, every four hours, to be followed by a teaspoonful of castor oil in a short time after the last powder is taken. In the meantime a solution of nitrate of silver in rose-water, ten grains to the ounce, to which add one drop of erco-sote, to be used as a wash. It should be applied directly to the patches with a swab of linen. A mixture composed of

Chlorate of potash..... 12 grains,
 Elixir of calisaya..... 1 fluid ounce,
 Orange-flower water..... 1 “ “

Mix. May be given internally, in teaspoonful doses, every four hours.

And if continued some time will usually effect a cure. Either the solution of zinc or nitrate of silver may be applied to the mother's nipples, if sore, immediately after nursing. But the very best remedy in either case, as we have recently discovered, is the following:

Take sulphite of soda.....	8 grains.
carbolic acid.....	2 “
distilled water.....	2 ounces.

Mix, and use as a wash.

For older persons the above remedies, increased according to age, will serve equally as well.

EXANTHEMATICA, OR ERUPTIVE DISEASES.

This classification of diseases will be considered here only as they commonly affect children.

STROPHULUS, OR GUM.

This is a papulous affection of the skin, occurring in infancy and childhood. It is commonly known as *the gum*. When the eruption is white, it is called *white gum*; when red, *red gum*; when yellow, *yellow gum*. It may depend upon some irritation in the stomach or incipient teething, and is most common in infants fed with the spoon. It is generally harmless, and requires little or no medical treatment in most cases, and will disappear after awhile of its own accord. Sometimes a dose of magnesia may be necessary to expedite its departure, if accompanied with sour eructations.

SCARLATINA, OR SCARLET FEVER.

This is a well-known eruptive contagious disease, in which the skin and mucous membrane of the throat are involved. It may present itself in one of three forms: *Scarlatina simplex*, mild or simple scarlet fever; *scarlatina anginosa*, in which the inflammation of the throat is of a serious nature; and *scarlatina maligna*, or putrid sore throat, which is always dangerous and speedily fatal in most cases.

SCARLATINA SIMPLEX.

In this form the precursory symptoms are chilliness, followed by flushes of heat, nausea, sometimes vomiting, and general debility, until the *second day*, when the eruption appears in little elevated red points, upon the face, neck, chest, and abdomen, also upon the tongue, throat, and palate, which, by the *third day*, have become thicker, with serrated edges, covering the whole body. The tongue is coated white, through which the red elevated papillæ penetrate, an indication and characteristic of the disease; the pulse is hard, full, and frequent; the skin dry and very hot. Upon the buttock, folds of the joints, and groin the color generally is of a deeper hue than elsewhere. About the *fifth* or *sixth day* the spaces between the eruptive patches become wider and somewhat subdued in color. Between this period and the *tenth day*, in this variety, desquamation, or peeling off of the skin, begins to take place from the feet, hands, and other portions of the body, and convalescence usually soon follows.

SCARLATINA ANGINOSA.

In this form the symptoms are more violent from the start, consequently it is more dangerous, from the throat being more seriously involved, which, by the second day, may be so much inflamed and swollen as not to admit of swallowing without difficulty. The almonds of the throat and soft palate are soon covered with a thick viscid fluid of a light yellowish or cheesy color. The eruption, which appears the *second or third day*, is slight, and not so diffused or vivid as in the simple variety, and may suddenly disappear, when symptoms of inflammation of the stomach and bowels present themselves, indicated by the tongue assuming a bright red color, with nausea, vomiting, and diarrhea, or, as sometimes is the case, the bowels are obstinately constipated.

It is in this variety of scarlatina that the little one hovers so long between life and death, and from which, if it recover, those unpleasant sequels—abscess of the glands of the throat, deafness, and dropsy—are apt to ensue.

SCARLATINA MALIGNA.

This form sets in with greater violence than the last variety; so violent in some instances, that the little patient may die in twenty-four hours, or in less time even, before anything can be done for it. The eruption is of a livid hue, and may come and go several times, if the patient survive any length of time. The pulse is small and irregular; the tongue and teeth are rapidly covered with a black or brownish

foetid substance; convulsions or coma soon set in, from which the patient seldom or never recovers; consequently there is little hope to be held out to parents and friends from the beginning, and they should be early prepared for the worst.

The *treatment* of the *first* variety is very simple, easy, and most always successful. If the bowels are costive, a mild purge may be given, followed by mild diaphoretics, such as Dover's powder, one-eighth ($\frac{1}{8}$) to one-quarter ($\frac{1}{4}$) of a grain, every four hours; or a mixture composed of the following:

Take liquor ammoniæ acetatis (spirits of mindererus).....	3 drachms.
sweet spirits of nitre.....	1 drachm.
cinnamon water.....	1½ ounce.

Mix, and give a teaspoonful every four hours.

To be followed by, or given alternately with, the above, a mixture composed as follows:

Chlorate of potash.....	10 or 15 grains.
Elixir calisaya.....	1 ounce.
Peppermint water.....	1 ounce.

To be given, in the same dose as the former mixture, every four hours.

The diet should be light, and as convalescence comes on more nutritious, with beef tea, &c. The throat is to be examined in the beginning of the attack, and washed inside with a watery solution (fifteen grains to the ounce) of chlorate of potash. Externally, hartshorn or volatile liniment may be applied, and the neck bound around with flannel, and kept on until the recovery is complete.

Treatment of Scarlatina Anginosa. It is this form in which the treatment is so various, and the disease

itself so trying to patient, parents, and attendant. In addition to the intestinal irritation, the throat is the principal point of anxiety and part to which the remedies are to be directed. It is recommended from the start to rub *croton-oil liniment* upon the outside of the throat and breast, and wrap around or cover with flannel; at the same time mop the throat inside with one of the following formulæ:

Take sulphate of zinc..... 20 grains.
 rose-water..... 1 fluid ounce.

Mix.

Or,

Take chlorate of potash..... 30 grains.
 rose-water..... 1 ounce.

Mix.

Or, that which will be found more efficacious--

Take nitrate of silver..... 12 or 24 grains,
 to the same quantity of rose-water as above.

Mix.

The patient may be allowed to swallow from a half to a teaspoonful of the *chlorate of potash mixture* every time the throat is washed, which should be three or four times a day, with either of the above washes. The following may be given internally:

Take carbolic acid..... 1 grain.
 sulphite of soda..... 2 "
 acetic acid..... 2 drops.
 simple sirup..... 1 ounce.
 pure water..... 1 "

Mix. Of which a teaspoonful may be given every three or four hours, together with, at different intervals, shaved ice, lime-water, and milk.

The *croton oil* acts by determining the eruption to the skin, and thereby relieves the throat and lungs.

to a great extent, whilst the zinc, chlorate of potash, and nitrate of silver assist in subduing the local inflammation. The carbolic acid, i.e., lime-water, and milk quiet the action of the stomach and intestines. The carbolic acid and the sulphite have a peculiar effect in subduing the fermentation in the stomach, whilst the milk imparts its mild nutritious properties. During the period of desquamation a nutritious diet and sirup of quinine, as a tonic, may be given. The following is an excellent formula, especially for children :

Take sulphate of quinine..... 4 to 8 grains.
 fluid extract of glycyrrhiza
 (licorice)..... 1 fluid ounce.
 elixir calisaya..... “ “

Mix, and give a teaspoonful every four hours.

The temperature of the sick room should be kept as equal as possible, and the patient carefully protected from the slightest changes of the atmosphere, by being lightly but sufficiently covered in bed. Flax-seed tea and gum-water, as drinks, may be given in the active stages of the disease.

The malignant variety requires stimulants and tonics from the start, and all efforts should be made to determine the eruption to the skin. Chlorine is highly recommended by some in each variety, especially in the anginosa and malignant. The following is the formula :

Take chlorine-water..... 1 drachm.
 pure water..... 3 ounces.
 compound sirup of asarum..... 1 ounce.

Mix. Dose: A dessert or tablespoonful, according to age, every three or four hours.

Scarlatina is undoubtedly a contagious disease, though the exact period of its existence at which it is most so is not understood, but is most probably before or when the eruption is at its height. It is usually epidemic, and, according to circumstances, prevails in a mild or aggravated form. As a general circumstance it has been of a mild type in this region since 1864.

RUBEOLA, (*ruber*—red,) OR MEASLES.

The symptoms of this disease, at its inception, are those of fevers generally, accompanied with catarrh, redness, and suffusion of the eyes, cough, hoarseness, sneezing, and some constriction of the chest, and pain during respiration.

The eruption appears about the *fourth* day of the fever, in the form of small circular or crescent-shaped spots on the face, neck, chest, abdomen, and limbs. The redness attains its height about the *fifth* day of the disease, second of the eruption, after which the general symptoms subside, or become considerably moderated. About the fourth day of the eruption the spots gradually assume a yellowish tint, and in a day or two more the scarfskin becomes detached and begins to peel off. When unaccompanied with catarrh the disease is termed *French measles*, or *rubeola sine catarrh*.

Sometimes complications, such as bronchitis, pleurisy, pneumonia, ophthalmia, and diarrhea are attendant upon measles. Of these the lung complications excite the most solicitude, and render the disease somewhat dangerous and protracted.

The *treatment* may be conducted upon the same principles as in simple scarlatina. The complications are to be treated, as if the eruption was not present, by external applications of mustard first, and, if necessary, blister plasters to the breast or back if the lungs are affected, and to the belly if diarrhea supervenes.

The sudden disappearance of the eruption is sometimes attended with danger, as it is an evidence of the intensity of the internal irritation, or may be attributed to sudden exposure to cold. Stimulants and warm bath may be used to overcome this complication. The hoarse cough which attends convalescence will usually yield to a mustard plaster applied to the breast. If the pulmonary symptoms are slight, and the outward manifestations of the disease go on regularly, the prognosis is favorable.

The disease is contagious, and may be imparted to others by inoculation. A second attack of this disease and scarlatina is improbable.

VARICELLA, OR CHICKEN POX.

This is an eruptive contagious disease. It is ushered in by a slight fever, that disappears upon the appearance of the eruption, which comes on in a day or two. It is vesicular, and matures about the fifth day, and then begins to dry up, and falls off about the seventh. A second attack is improbable. It sometimes occurs as an epidemic, and is undoubtedly caused by a specific contagion. In most cases little or no medical treatment is required. A dose of Husband's magnesia or a solution of the citrate

of magnesia may be given to open the bowels, followed by acidulous drinks—lemonade or dried-apple water, made by pouring boiling water upon dried apples. They should be taken cold.

VACCINATION. (*Vacca—a cow.*)

The vaccine disease is best explained in describing the process, as follows:

Having procured some good lymph or a fresh crust from a healthy child, (an infant of two or three months old is the best,) remove a small spot of the cuticle or scarfskin upon the upper third of the left arm, by scratching it with a needle or lancet; or with the latter make four or five slight incisions, at right angles to each other, not deep enough to draw blood, if possible, and insert the lymph, or a portion of the crust, previously made into a thin paste with a drop of water. Allow that inserted in the arm to become dry, after which it may be let alone, or protected by a piece of adhesive plaster placed over it. If the patient is susceptible to the disease, about the third, sometimes not until the fifth or sixth day, a small red pimple, partly elevated above the surrounding surface, makes its appearance, which in a day or two afterwards becomes a vesicle. This continues to enlarge by its filling with serum, and after awhile becomes depressed in the center. About the sixth day the areola or red circle around the base of the pock becomes visible. The whole now continues to enlarge until about the tenth day, when the disease usually reaches its height. The pock may now measure from one-fourth ($\frac{1}{4}$) to one-half ($\frac{1}{2}$) an inch

in diameter, depressed, with a small scab in its center. The areola may extend to a very little distance from the base of the pock, or it may cover a radius of four inches or more. As the scab in the center enlarges, the serum beneath it is converted into pus. About between the eighteenth and twenty-first days the crust begins to loosen and falls off. The areola at this time commences to disappear, leaving a cicatrix or scar peculiar to the disease, so easily recognized by every one. In some instances, when the disease reaches its height, there is considerable fever, attended with an eruption on other parts of the body, and an enlargement of the gland under the arm. If the vaccination pursues a course similar to that marked out above, it can be relied upon as being genuine and protective, not otherwise; for any one may have a very sore arm, which may jeopardize their lives, from having had inserted into the former some subtle substance intended or supposed to be vaccine virus. Therefore, it is well to be acquainted with the source from which the matter to be used originated.

The best and safest period for vaccination is at the age of two or three months, as at this time generally there is not so much disturbance of the system depending upon teething. The subject for vaccination should be in good health at the time of the operation, otherwise its progress may be interrupted, or at least modified. There is some difference of opinion as to the length of time during which the vaccination continues effective. The safest plan is to have it renewed at least once in seven years, or whenever the small pox prevails in a city, town, or neighborhood.

Although there is some evidence to prove that in one or two instances persons who have never been vaccinated may have suffered from a second and severe attack of small pox, there is none to show that those who have been well vaccinated were ever attacked with variola or small pox, except in a very mild form, known almost everywhere as "varioid." Consequently, to offer any argument in support of vaccination at this late day (seeing how the pestilence that was wont to walk in darkness with gigantic strides to and fro about the earth has been tamed by its influence) would indeed be a work of supererogation. Therefore, it is not our purpose to attempt it, for its utility is a self-evident truth.

During the spring of 1862 the writer vaccinated not less than five hundred individuals, three fourths of whom were children of both sexes, and it is believed that not one of these was attacked with variola during the epidemic then prevailing or since, though many of them were exposed to the various forms of the disease. These facts, it is thought, may be taken as some little evidence as to the efficacy of vaccination.

VARIOLOID, (*variola small—pox*: Gr., *eidōs*—"like" or "form.")

A modified form of small pox, in which there is but slight or no febrile symptoms in most cases. It appears with an unimportant papulous or vesicular eruption, which runs on until about the fifth or sixth day and then dries up.

Little or no medical treatment is required, except

a saline purgative of epsom salts or magnesia, and careful protection at the same time from the vicissitudes of the atmosphere. Persons who have not been vaccinated are liable to take small pox from this disease; a fact which of itself ought to be a sufficient proof of the efficacy of vaccination to modify an attack of small pox, and induce all to avail themselves of the protecting influence of the same.

VARIOLA, (*varius*—"spotted," or *vari*—"pimples,")
SMALL POX.

This is not a disease peculiar to childhood, but as children that have not been vaccinated seemingly are more prone to an attack, and from the very nature of things are more exposed to the disease, than grown persons, its character may be here noticed and its course described.

It is contagious, and inaugurated by fever setting in and continuing for two or three days before the eruption appears. There are three varieties, viz: the *distinct*, the *confluent*, and the *malignant*. In the *first*, the pustules are distinctly separated from one another, and, with good nursing, will usually terminate favorably. In the *second*, the symptoms of fever are more aggravated, the pustules thick, and run into each other. In the *third*, malignant or black small pox, the eruption sometimes does not appear until after death, which may result in from twelve to twenty-four hours from commencement of the attack. It is then to be seen making its appearance under the skin in dark or livid spots, which soon coalesce and spread over the whole

body, giving it the peculiar feature from which its name is derived.

Three distinct stages occur in the first and second variety: The eruptive, maturitive, and declining stage. The first of these stages sets in about the third day of the fever, appearing in minute red pimples, on the face first, then the body, and extending out upon the extremities. By the *fourth* or *fifth* day they form into pustules, with a depression in the center, (*umbilicated.*) About the *sixth* day they become full and distended, losing their umbilicated feature. About the *eighth* day, the maturitive stage, they assume a brownish color; and by the tenth or eleventh day they begin to burst or dry up; and from this to the twentieth day, the declining stage, they fall off, leaving their characteristic scar or depression upon the skin.

It is a favorable indication, and can in most of cases, if not every one, be relied upon as such, when the pustules become well-developed, and run the regular course as marked out above. On the contrary, if the pustules fill slowly, and present a relaxed or flabby appearance, it may be looked upon as a serious case, and death may occur at any period, probably from some violent internal complication hitherto not manifest.

During the epidemic that prevailed in this city (Washington) in 1861 and 1862, being at that time a city physician to the poor, (fourth ward,) the writer had some days under charge as many as fifteen and twenty cases of all varieties, from which continued experience he soon learned to make up a prognosis, favorable or unfavorable, very shortly

after the eruption made its appearance, in which he seldom or never failed to see his predictions in reference to the termination of the malady realized even in confluent cases, in which there is always so much to excite anxiety and doubt as to how the disease will possibly terminate.

The *treatment* consists principally in having good and constant nursing, by some one not afraid of the disease. We have seen many die from sheer neglect, apparently arising from fear on the part of those immediately around the patient. If the bowels are costive in the beginning of the attack, they may be opened by calomel and jalap, or magnesia alone, after which Dover's powder may be given as a diaphoretic and to secure rest at night, mucilaginous drinks, flavored with lemon; to which may be added sweet spirits of nitre, one ounce to the pint of flaxseed-tea or gum water. The diet should be light—beef tea, rice and milk. If necessary, as indicated by great difficulty in swallowing, the throat may be swabbed out with a solution of nitrate of silver, about twenty grains to the half ounce of water. As convalescence becomes evident, the diet should be more nourishing and slightly stimulative; wine whey or milk punch and sirup of quinine may be given.

The odor exhaled from the body during an attack of this disease is peculiar, and if once inhaled will not easily be forgotten; in fact the disease can be detected in a house by one who has an acute olfactory, and is acquainted with the odor. The sick apartment should be well ventilated, and disinfectants freely used. All persons are liable to an attack, unless previously vaccinated.

CROUP.

This disease is so called from the peculiar noise made in breathing during an attack. It is likened to that made by a chicken affected with the pip. There are two varieties recognized by medical writers in this country, viz, the *catarrhal* and *pseudo membranous*.

The first is usually preceded by symptoms of catarrh and a thick husky cough. The paroxysm takes place generally at night, when the patient suddenly awakes with a difficulty of breathing, accompanied with a shrill noise, great anxiety, restlessness, and distress in the effort to obtain a full inspiration; the face is flushed, the cheeks turgeseent, with an expression of great anxiety for relief. Death by asphyxia may result from the violence of the attack, or it may subside spontaneously, and be renewed the next night.

It is best treated by giving an emetic in the paroxysm. For this purpose a half to a teaspoonful of sirup of ipecacuanha may be given in warm water, and repeated at short intervals until vomiting has been induced. This is the best emetic for young children, though *tartar emetic*, one to three grains, may be given in the same menstruum—warm water; also sulphate of zinc, two or three grains at a time. Afterwards the throat and breast may be rubbed with some stimulating liniment, as turpentine and the volatile or eroton oil, to be followed by the internal administration of sirup of ipecacuanha, six drops to a teaspoonful, according to age, every four hours, to keep

up slight nausea. It will be necessary to give calomel to break up the plastic tendency of the blood. Thus—

Take calomel..... 2 to 4 grains.
 ipecacuanha..... $\frac{1}{2}$ to 1 grain.
 anis powder, a sufficient quantity.

Mix, and divide into four powders; one to be given every four hours.

If the paroxysm be severe and protracted, the patient may be put into a warm bath, and leeches applied to the temples or throat.

The pseudo membraneous (false membrane) CROUP.—The membrane is formed from the exudation which takes place in the *trachea* or windpipe. It is of an exceedingly plastic or pasty nature. The cough, at first muffled and dry, is soon attended with an expectoration of a thick, viscid, and ropy mucus. There is great turgescence about the neck and face, the cheeks are swollen and livid. If not arrested, the disease continues to advance, and the symptoms become more aggravated. The cough, though less frequent, is now more suffocative, and the patient, in efforts to breathe, throws about the arms and grasps the throat or any immediate surrounding objects, and shortly dies in convulsions or great distress, not only to the sufferer, but to those near, who are compelled to behold the horrible spectacle without being able to afford relief.

The *treatment* is the same as in the former variety in the beginning, though it must be more decided. *Calomel* must be given, with a view of bringing the system under immediate control, and tartar emetic

or ipecacuanha, to keep up a continual nausea, to break up and, if possible, expel the adventitious membrane. In all cases, without waiting to see which of the two forms the disease is going to assume, it is best to commence with croton liniment, applied externally, and a strong solution of nitrate of silver, twenty to forty grains to the ounce of water, internally to the throat. The mopping of the throat will serve the place of an emetic sometimes, from exciting the fauces; if not, the latter may be given afterwards. The operation of *tracheotomy*, opening the trachea or windpipe, may be performed when other means give no hope of relief; but to be serviceable it should not be too long delayed.

SPASM OF THE GLOTTIS,

Or *spasmodic croup*.—A condition apt to occur in children about the time of weaning, caused by ingesta or irritation in teething. It is manifested by a sudden difficulty of breathing, from a spasm of the muscles of the tongue. The child loses its breath, throws up its hands, and turns blue about the mouth and under the eyes. Upon recovering, the child makes a long crowing inspiration. If severe and protracted, the paroxysm is apt to prove fatal.

Treatment.—During the spasm throw cold water upon the face or put the child into a warm bath, which means will usually be successful in breaking up the spasm; afterwards give a dose of castor oil, and keep the child upon a light diet for several days to prevent a return.

DIPHTHERIA, OR DIPHTHERITIS, (*a pellicle, a skin.*)

This disease resembles and is sometimes confounded with croup, but it differs from the latter in the part attacked. Croup is usually confined to the *trachea*, (see Croup,) whilst diphtheria attacks the *pharynx* or back and side of the throat, and may extend down into the *œsophagus* or gullet. It is manifested by an inflammation of the parts, soon followed by a white or yellowish mucus, evolved from the lining membrane, filling up the pharynx and covering the almonds of the ears, attended with a dangerous and very low form of fever, with great prostration. If not relieved, suffocation and death soon take place.

The *treatment* must be decided and active from the start, and addressed to the part affected—the throat; nitrate of silver, thirty grains to the ounce of water, or even stronger, applied by means of a mop inside, and croton oil outside, freely rubbed until an eruption is produced, and then cover with flannel. The inside should be mopped three or four times a day at first, and then but once or twice a day, with the internal administration of calomel and ipecacuanha, until the inflammation has been reduced; to be followed by quinine and slight stimulants in the debility that ensues. Diphtheria is apt to be followed by paralysis of one or more parts of the body, which sooner or later passes off, and the patient entirely recovers therefrom. Chlorate of potash in solution has been recommended, and is a favorite remedy with some, as a wash for the throat and to be taken internally. We have always considered the disease

too formidable and dangerous to trust to such a mild application to the throat in the acute stage, in which the treatment, as above given, has been attended with no little success in our hands, but consider it useful in connection with elixir calisaya, given internally, in the debilitated stage of the disease. *Tincture of the muriate of iron*, in doses of fifteen or twenty drops, frequently repeated, is recommended by some; but we would not advise its being given in such large doses or at all to very young children. Two to five drops, according to age, would probably be inside of safety. The disease usually prevails in an epidemic form. It is believed to be contagious by some, and doubted by others. But one thing is certain, and that is, if one of a family, consisting of a number of children, is attacked with the disease, the others usually take it. Therefore it is well to examine the throats of all in a family, if one have the disease, with a view of early counteracting any symptoms of inflammation that may be present. Frequently the disease is so insidious, as to subtilely attack and destroy the patient before anything can be done for it; consequently any manifestations of the disease should be attended to without a moment's delay, and be met with determined and decided treatment.

The sulphite of soda and carbolic acid, as prescribed in the treatment of scarlatina, may be used as a wash to the throat and given internally in diphtheria with some benefit.

PERTUSSIS, OR WHOOPING COUGH.

This is a well known and easily-recognized contagious disease, particularly attacking children, sel-

dom or never but once the same individual. Adults are liable to have an attack if they have escaped it in childhood.

It usually begins with a cold or catarrh, which may last for some days, when the cough becomes convulsive and recurs at irregular intervals, brief at first, but after awhile lasting almost twenty minutes in some cases. Each spasm consists of a quick succession of coughs, until the patient is nearly exhausted. The fit of coughing is accompanied with the expectoration of a thick shreddy phlegm, and sometimes terminates in vomiting, or it is interrupted by a sonorous inspiration or whoop peculiar to the disease. In the paroxysm the face becomes puffed or swollen, and livid; the eyes suffused and balls protruded. In the beginning of the attack the coughing does not come so frequently, but after awhile it recurs several times a day, and becomes more severe toward evening until the period of decline, when it comes on in the morning and evening only, and still later, at the latter period or evening alone.

Whooping cough generally continues from five to nine weeks or longer. The younger the child, the greater is the danger. Pneumonia and bronchitis are sometimes complications. If these do not exist, the intervals of cough are unattended with fever or loss of appetite, and the child can go about almost the same as usual.

Treatment.—At the inception of the disease it is well to administer a mild purgative of rhubarb or jalap, to be followed by—

Take sirup of ipecac.....	2 drachms.
sirup of asarum.....	1½ ounces.

sweet spirits of nitre..... 2 drachms.
 oil of amber..... 4 or 6 drops.

Combined into a mixture, of which a tea or dessertspoonful may be given every three or four hours.

If complicated with pneumonia or bronchitis, a fly blister may be applied to the chest.

The *gum ammoniac plaster*, worn constantly upon the breast, will considerably modify the spasms of coughing, and cut short the disease. It should be large enough to cover the whole of the breast, extending from the collar bones to the inside of either shoulder, down over and below the breast-bone. The milk of asafœtida, one ounce, may be added to the above mixture, or given alone in teaspoonful doses every four hours. Alum, powdered, in two-grain doses, is recommended by Dr. Meigs in this disease. Frietions of garlic, oil of amber, and tincture of belladonna, to the spine, are considered useful in modifying the paroxysms, and may be tried.

The disease is supposed to depend upon a peenliar irritation of the pneumogastric, a nerve distributed to the lungs and stomach. When the disease proves fatal, it is from the complications above mentioned, or from œdema of the lungs, and sometimes from pressure upon the brain, produced by a protracted paroxysm of coughing. Vaccination is said to be influential in modifying an attack of whooping cough.

WORMS.

Three varieties or species of worms usually inhabit the intestinal canal of children and others. They

are the *ascaris lumbricoides*, a round, long worm, from four to twelve inches in length, which occupies the stomach and intestines. The head is sharp and set within three tubercles, whilst the tail terminates in a fine point. The *ascaris vermicularis*, or thread-worm, is about an inch or less in length. These usually infest the rectum, and a few may be discovered by dilating the same, when they will gradually wriggle themselves out, or they may be removed with blunt-pointed forceps. The *tænia*, or tape-worm, of which there are two species commonly found in the human subject: *tænia lata*, the broad tape-worm, from three to fifteen feet in length, and occupies the upper part of the intestines; *tænia solium*, the long tape-worm, from thirty to forty feet long, found occupying the same situation as the former.

The symptoms indicating the presence of worms generally are griping pains in the abdomen, nausea, vomiting, irregular or loss of appetite, disturbed sleep, in which there is a gritting of the teeth, irritation or itching of the nose or anus, foul breath, dilatation of the pupils, headache, *strabismus* or squinting, emaciation, and sometimes convulsions. The bowels are irregular, mostly loose, and stools slimy.

The causes operating to favor the development of worms are indigestible and unwholesome food. The principal object in the treatment is to expel the vermin, and then by suitable diet and tonic medicines prevent their further growth. The first indication is accomplished by medicines called *anthelmintics*. The most effective of these are cowhage, pink-root, wormseed, camphor, and turpentine.

A grain or two of calomel mixed with sugar, and

given to a child, followed soon after with a dose of castor-oil and turpentine, a tea to a tablespoonful of the former, according to age, and four to fifteen drops of the latter, will frequently expel all the lumbricoides that may be in the stomach or intestines. An injection into the rectum of Castile soap-suds will wash out the thread-worms. Turpentine in large doses has been recommended for the tape-worm. The oil of fern likewise. But probably the very best vermifuge is made by rubbing up about four to twelve grains of *santonin* with an ounce of the "fluid extract of spigelia and senna." Four grains to the ounce of extract will be of sufficient strength for very young children. Dose: half to a full teaspoonful, given three times a day. This mixture has less of the odor peculiar to most medicines of this kind, which makes them so nauseous to children and even adults; a circumstance of itself that commends it to parents generally.

A good preparation for children suspected of having worms is the compound sirup of koosso, combined in the same proportion with the spigelia or alone. Dose, same as the above. After the expulsion, good wholesome diet and exercise are the best means of preventing their development again.

PORRIGO LARVALIS.

Crusta lactea, or *milk crust*. This easily-recognized malady is almost exclusively confined to infants, and commonly makes its appearance on the forehead and cheeks, at first in little white and pointed pimples, crowded together upon a red surface. They

soon break and discharge a viscid fluid, which becomes hard and forms thin yellowish scabs. This process may continue, becoming thicker and spreading, until the whole face, except the eyelids and nose, are covered; hence the term *larvalis*, a mask. The eruption is attended with considerable itching, which may disturb the sleep and affect the appetite and digestion, thereby causing some debility and distress. Sometimes the eyes become inflamed, and the ears give out a discharge, whilst the glands under the latter are swollen and tender. Diarrhea may set in, attended with a wasting away. But most often the disease terminates favorably, though it may be somewhat protracted and troublesome.

The *treatment* consists in attention to the bowels and regulating the diet, as has been already pointed out at an earlier period in this work. The affected parts may be bathed in tepid water and Castile soap, followed by a watery solution of sugar of lead. Cod-liver oil internally, in doses of a few drops to a teaspoonful, according to age, will be found useful in this disease.

INCONTINENCE OF URINE.

Children are usually affected with this condition. It may depend upon debility or paralysis of the sphincter muscle of the bladder, a muscle surrounding the neck or outlet of that organ, or upon a sensitive state of the whole bladder, whereby it is unable to retain the urine, especially during sleep.

The treatment is to give tone to the whole system by good diet and tonics. The following formula for

the administration of iron will be found pleasant and effectual for children:

Muriated tincture of iron.....	1 drachm.
Tincture of cantharides.....	$\frac{1}{2}$ drachm.
Chlorate of potash.....	1 scruple.
Simple sirup.....	2 ounces.
Orange-flower water.....	2 ounces.

Mix, and give from a tea to a dessertspoonful every four hours.

The iron may be increased to two drachms for adults.

The flannel bandage, previously recommended in this work, will be found useful in this disease, by the protection to, and the gentle irritation and excitement of, the circulation upon the surface it surrounds, thus preserving from chilliness or the sudden changes of the atmosphere, which usually excite the kidneys or produce a contraction of the bladder. It is well for parents, upon themselves retiring for the night, when the child has been put to bed earlier, to rouse it up and let it use the vessel. This not only relieves the distended bladder, as it is apt to be at this time, but gives it an opportunity to recover its wonted tone and sensibility. Besides, it accustoms the child to getting up, which it will soon learn to do of its own accord when it desires to micturate.

PAROTITIS, OR MUMPS.

This well-known affection is an inflammation of the parotid glands, the glands situated under the ears.

The indications are a slight fever, which moderates upon the appearance of an enlargement under the

ear; sometimes it is on but one side, at others on both. It usually increases in size until the fourth day, and then gradually subsides.

Treatment.—In most cases, a dose of one teaspoonful or more of magnesia, to move the bowels, at the same time apply to the tumor some stimulating liniment, (*volatile liniment* is about the best,) and cover with flannel.

Mumps are apt to become troublesome from their tendency to recede, and attack the glands of the breast in female and the testicles in male children. This is sometimes the result of applying cold to the tumor in the beginning. Warm applications to the glands under the ear, mustard, or a blister-plaster back of the neck, will be necessary to invite them back.

AFFECTIONS OF EYELIDS AND EYES.

Under this head those most commonly affecting children only will be but briefly considered.

HORDEOLUM, OR STY.

A painful boil at the edge of the eyelid.

Treatment.—In the beginning it may be arrested by the application of cold, or alum-curd, made by rubbing alum with the white of an egg. Afterwards it may be necessary to encourage it to suppurate by poultices. When it has fully formed it may be punctured with a needle.

OPHTHALMIA TARSI.

This is an inflammation of the margin of the eyelids, so that they stick together from the congealed lachrymal fluid accumulating during sleep. It is commonly found in those of a scrofulous tendency.

Treatment.—Attention to diet, and the application, three or four times a day with a camel's-hair pencil, of *citrine ointment*.

PURULENT OPHTHALMIA IN CHILDREN

Usually appears a few days after birth, most frequently about the third.

Symptoms.—The lids, which are kept closed, upon being drawn open, present a red appearance, and at the same time discharge a thick purulent mucus. It is attended with considerable restlessness and sometimes fever.

Treatment.—Keep the eye well washed with breast-milk or tepid water. If it does not yield to this, wash with a weak solution of sugar-of-lead water. Or

Take sulphate of cadmium..... 3 grains.
 rose-water..... 1 ounce.

Mix. Drop one or two drops in the eye two or three times a day.

TALIPES, (*talus*—*ankle*, *pes*—*foot*,) CLUB-FOOT.

This deformity, which unfortunately occurs to some children, may exist at birth or be acquired afterwards. In the first instance it is attributed to

some peculiar disturbance, originating in the brain or spinal system, which produces an irregular contraction of the muscles on either side of the limb; thus destroying the antagonism that otherwise would and should have existed between the muscles affected. The acquired condition may be the result of injury to the foot or ankle, or a disease of the same—such as rickets or the sequelæ of scarlet fever, small pox, or from convulsions. There are three varieties mostly met with: 1st. That in which the foot is turned inwards and rests upon its outer edge, *talipes varus*; 2d. Where the foot is turned outwards and rests upon its inner edge, *talipes valgus*; 3d. That in which the foot rests upon the ball of the great and smaller toes, *talipes equinus*. There are other varieties, which receive names according to the position the foot assumes, but those given above, as before intimated, are most frequently met with.

The treatment of these conditions requires some knowledge of surgery, and more properly belongs to the domain of that art. Therefore it is enough to merely mention them here, and refer the reader who may desire to pursue the subject further to any standard surgical work.

HYGIENIC.

“Reason’s whole pleasure, all the joys of sense,
Lie in three words: health, peace, and competence.
But health consists of temperance alone,
And peace, oh virtue, peace is all thy own.”

Few persons, especially those who scoff either directly or by innuendo at “the healing art,” consider

that to the active workers therein we are indebted for the comparative immunity enjoyed by all from "the pestilence that walketh in darkness, or the destruction that wasteth at noonday." Nor do they think of the sacrifices endured by them: the wear and tear of both body and mind, whether engaged in efforts to promote the welfare of a whole community, or at the bedside of the solitary sick, endeavoring to restore the patient to health, relatives, or friends. Little do they think that with the laborers in that art originated all those sanitary measures now in use or being adopted by all large cities throughout the civilized world, the efficacy of which are so apparent in lessening their rates of mortality. Neither do they remember that to the unwearied disciples of *Æsculapius* they should be ever grateful for the knowledge we possess in relation to ventilation, heating, and otherwise rendering healthy, comfortable, and convenient large public buildings, hotels, and private houses, and also "the great ships that go down to the sea," that were wont to be great magazines of disease and death. Let them for a moment ponder over these and a thousand other little and big things, all of which originated in and emanated from one or the other branches of medicine, to render the world pleasant for the abode of man and beast during their sojourn in it, and we are sure, "if judgment hath not 'flown to brutish beasts,' and they lost their reason," their derisive smile must give place to honor and praise.

In conclusion, we will not be able to more than glance at some of these great sanitary measures that

may seem befitting the purposes of this work; the first of which relates to air.

AIR.

"Thou cheerful guardian of the ruling year,
Whether thou wanton'st on the western gale,
Or shak'st the rigid pinions of the north,
Diffusest life and vigor through the tracts
Of air, thro' earth and ocean's deep domain.
Without thy cheerful, active energy
No rapture swells the breast; no poet sings;
No more the maids of Helicon delight:
Come then with me, O Goddess, heavenly gay!
Begin the song, and let it sweetly flow;
And let it sweetly teach thy wholesome laws,
'How best the fickle fabric to support
Of mortal man—in healthy body how
A healthful mind the longest to maintain.'"

One of the most important bodies with which sanitary science has to deal is the atmosphere we breathe, and in and by which we live, move, and have our being. This vast ocean, at whose bottom we are placed, surrounds the whole earth fifty miles deep, or more properly high, and of course is carried around with it in its diurnal motion of one thousand and forty miles an hour, and along with it in its orbit at the rate of sixty-eight thousand miles per hour, by means too wonderful for us to comprehend; but we know that, like Andromeda to the rock, it is chained to earth by the law of gravitation, with a weight and pressure equaling fifteen pounds to the square inch. It is composed of, in 100 parts—

Nitrogen.....	76.84
Oxygen.....	23.10
Carbonic acid.....	0.04
And a trace of ammonia.	

Whilst this immense body is at rest, as regards the motion of the earth, if it remained so in respect to ourselves, of course it must soon become saturated with all kinds of deleterious substances evolved from decayed animal and vegetable matters. But in this, as in all other of His works, God has provided against such a contingency in endowing it with elasticity, by which its particles can move upon one another, compressed here and expanded there, and its temperature hot or cold, according to its situation near or remote from the earth's surface. At one time a portion of it is suspended over the wide expanse of waters, taking the latter up in the form of vapor, like a sponge, until, saturated, it is pushed aside by another from the dry land, which in its turn becomes likewise charged. Thus the air is kept continually in motion, and, in accordance with its velocity, it is the gentle zephyr, the driving gale, or the raging, rushing, roaring, crushing tornado. Parting slowly with some water in one place, it falls the cooling shower; by having its vapor wrung suddenly from it in another, it descends a driving rain or pelt-ing hail-storm, filling with fear and awe some of the habitants of earth, and striking deeper terror into the souls of others by the vivid electrical flash and the thunder's loud crash that accompany it. These are the forces and means nature uses to purify the air, so essential to animal and vegetable life.

Some idea in relation to the quantity of what are

termed special impurities of air may be formed, when we consider only one or two of the sources from which they may emanate. A healthy adult ordinarily exhales from the lungs in twenty-four hours twelve to sixteen cubic feet of carbonic acid, besides an additional quantity from the skin, the amount of which has not yet been definitely determined. From the last-mentioned source, within the same period of time, is also evolved from twenty-five to thirty-five ounces of watery vapor, which upon examination has been found to be principally nitrogenous and very foetid. These impurities accumulate and render noxious the atmosphere of all ill-ventilated churches, school-houses, private dwellings, and sick-rooms. Almost every animal gives out a proportionate quantity of this gas, besides that emanating from large manufactories, the result of the partial combustion of coal only. Carbonic acid and carbonic oxide are impurities most fatal to animal life. An increase of these to fifteen or twenty volumes in one thousand, above normal, will in some persons produce dizziness and fainting, and if it should amount to fifty in one thousand volumes, death. This is the reason why some individuals are required to retire from crowded and badly ventilated churches and halls; and others, if they remain, are attacked with syncope or fainting from the cause just mentioned. Consequently the treatment in these cases is to remove the patient into a pure atmosphere, which will soon cause a reaction in the system.

We have already pointed out the means by which nature purifies the air upon a large scale—by winds, storms, rains, and electricity. In cities, dwellings,

and sick-rooms, agents commonly known as disinfectants are employed by man for the same purpose on a small scale. They are generally classed as solids, fluids, and gases. Most important among the first of these are lime, charecoal, and dried earth; of the fluids, permanganate of potash, (Condy's fluid,) and earbolic acid are mostly used; of the gases, chlorine, nitrous, and sulphurous acids are the most powerful agents.

The following processes for obtaining some of the above and other well-known antiseptics are given for general information :

CHLORINE GAS.—The most simple and easy mode of preparing this powerful disinfectant, on a small scale, is by placing in an open glass or porcelain vessel one tablespoonful of common salt, and then pouring upon it a small proportion of sulphuric acid, (vitriol.) Another simple mode of obtaining a supply of this gas is by taking a small quantity of chloride of lime, in an ordinary saucer, and pouring a little sulphuric acid upon it; or it may be left alone, (the ehloride of lime,) exposed to the air, the carbonic acid of which is absorbed by the lime and sets the ehlorine free. Still another way to obtain it is by the action of sulphuric acid, diluted with water, upon a powder composed of equal parts of black oxide of manganese and common salt. Again, it may be prepared by two parts of muriatic acid with one of water and one of black oxide of manganese. The least quantity of this gas will serve for an ordinary-sized room, and even then great care must be exercised in having the room well ventilated.

BURNETT'S DISINFECTING FLUID is a solution of the

chloride of zinc, about two hundred grains of the salt to an ounce of water. For common use this should be still further diluted to the extent of one ounce of the fluid to a quart of water. It may be sprinkled about the floor, in the water-closets, and bed-pans, or a room may be purified by saturating flannel with the fluid and waving it to and fro through and around it.

LEDROYEN'S DISINFECTING FLUID is a solution of the nitrate of lead, one drachm to one ounce of water. This, combined with solutions of the salts of copper, will destroy the odor of sulphuretted hydrogen. The latter may be easily recognized as that present in bad eggs.

OZONE can be obtained by mixing permanganate of potassa, two parts, with three of sulphuric acid; this forms an opaque olive-green mixture, which, if exposed to air, will give out ozone for some time. Another mode of obtaining it is from old ether that has been allowed to stand some time. If a wide-mouthed glass or earthen vessel be moistened with this, and a glass or iron rod well heated placed into it, ozone will be given out therefrom for several days.

Ozone is stated by Professor B. Silliman, Jr., to be an allotropic, or double condition of oxygen. Its peculiar odor is detected in the atmosphere after a considerable discharge of electricity. Hence its name, from *ozumi*, to smell. Ozone may also be generated by allowing phosphorus to slowly consume in a globe vessel of moist air.

SULPHUROUS VAPOR.—The most simple mode of obtaining this is by burning sublimed flowers of sulphur.

SULPHATE OF IRON, (*Green Vitriol.*)—This is an excellent and easily-procured disinfectant. If it is mixed with lime, oxide of iron is set free, which, by its affinity for more oxygen, destroys all effete matter within its range. Hence its utility in diarrhea, typhus and typhoid fevers, to disinfect the stools. As possessing specific properties, against the spread of cholera especially, carbolic acid and sulphate of iron, mixed to saturation, is generally conceded the very best. Carbolic acid alone is an excellent antiseptic. Fresh earth, charecoal, heat from steam or dry to two hundred or more degrees of Fahrenheit's thermometer, are also simple and easily-obtained disinfectants. Ashes of bituminous and anthracite coal are also good for the same purpose.

IODINE, when exposed to the air, gives off a vapor, affording a simple means of obtaining an efficient antiseptic.

There are other disinfectants than those given above, but none are more efficient and easier obtained, and that is why we have given them a place here.

Of course, as before intimated, these are mere auxiliaries to ventilation, without proper attention to which the disinfectants themselves must prove deleterious and dangerous to health and life.

WATER.

The next most important sanitary substance with which we have to deal is water. It is known to most every one that its elementary constituents are hydrogen and oxygen. We have seen how it is taken

up from oceans, seas, and rivers in the form of vapor by the atmosphere, and how it falls again to the earth in rain, hail, and snow. A portion of it, filtering through the earth's crust, necessarily partakes of the nature of all soluble substances with which it comes in contact, from which result the various mineral springs; whilst the remainder finds its way through rills, rivulets, and streams back to its original source.

How to obtain a sufficient supply of good water for drinking and other purposes has been almost the chief aim of all large communities from time immemorial. The pools of Solomon, near Bethlehem, said to be at this time in almost as perfect a state as when first made, were, it is thought, but part of a plan to supply Jerusalem with water. It seems that the ancient Romans were so much devoted to procuring a plentiful supply of water, that none of our modern systems of aqueducts excel, if they equal, their efforts in that respect. Some conception of the quantity required for necessary uses by a thickly-inhabited city may be arrived at, when we consider that a healthy individual ordinarily consumes, in twenty-four hours, from seventy to eighty fluid ounces, one half of which perhaps is taken imperceptibly in solid food, and the remainder in a liquid state, whilst for bathing purposes, when perfect cleanliness is desired, about fifty gallons for a general, six gallons for a shower, and from twelve to eighteen gallons for a hip-bath. Attention to the skin is of the greatest importance for the preservation of health. Besides removing the detached particles of epidermis and dust caught and retained by perspiration, the fre-

quent ablutions of the body tend to harden the system against rheumatism, colds, and some affections of the kidneys. There is no doubt that a more free use of this liquid, for the purposes just mentioned, by persons generally, especially upon children, would tend to lessen considerably many of the diseases that flesh is now heir to. The general indications of good drinking-water are well known, and may be described as follows: It should be transparent, colorless, odorless, tasteless, cool, and pleasant to the taste.

Food.

We have already considered this subject as it regards infants and children.

Food is required by mankind and animals in general for two purposes: (1,) to supply the waste induced by the wear and tear of the tissues of the body, (2,) to keep up the animal heat. Liebig, who is good authority in the premises, makes two classifications, which we propose merely to glance at. One includes all nitrogenous substances, which he terms the plastic elements of nutrition; the other, non-nitrogenized matters, which serve as fuel to maintain the animal heat. The former comprehends flesh of all kinds, the latter all fats, starch, and sugars. Of starch, besides other well-known depots, we have a plentiful supply in the ordinary potato. The source of fats and sugars are too well known to require mentioning.

The amount required daily by a healthy individual is from twenty-five to thirty-five ounces, of which about one-fifth should be animal food. The office

of cook is no mean one; yet the functions appertaining thereto are greatly under-estimated by some, and very few who profess to be cooks really know anything about it. To do it justice the subject would demand a volume, but we can only give it a passing remark. There are but two proper modes of dressing or cooking meats, which are boiling and broiling, (the latter including roasting.) In the former instance, the meat should not be put in until the water has reached the boiling point. The object being to retain the nutritious substances, it is accomplished by the hot water constringing the albumen and muscular fibres upon the surface, and thereby preventing their escape. If soup is to be made, then it is best to put the meat in cold water, and allow the temperature to gradually increase, as the object in that case is to extract the nutritive principle. In broiling and roasting, the coals must be bright and glowing in the first, and the oven hot in the second instance, in order to coagulate the albumen and retain within the juices of the meat.

CLOTHING.

Upon this subject our object will be rather more to consider the advantages of different fabrics for the purposes of clothing than a discussion of either the mode or manner of dressing, though the latter as much as the former probably belongs to the domain of hygiene. As a general circumstance, the style of dress varies according to climate and the state of civilization attained by a nation. In some

parts of Africa and Australia the costume of either sex is almost similar to or hardly any improvement upon that worn by our first parents in the Garden of Eden. The costume now in vogue among the Chinese, and probably with the Japanese, has been the same at least a thousand years, without change of fashion. Unlike our own, eastern women never dress for public display. When they go abroad, it is in long robes and with their faces closely veiled; consequently among them there can be no rivalry in the matter of dress; no envyings, hates, or strifes, originating in or growing out of the same. Nor is it to be expected they indulge in innuendoes reflecting upon the morals as well as the taste of others, because they are capable of or prefer to wear this or that extravagant or simple style of bonnet, cloak, or dress. Would that we could prevail upon a few of our own countrywomen to imitate those of the land of Mohammed in the matter of dressing, only to please their own lords; or to devote but a small portion of the time usually spent at their toilets to intellectual or industrial pursuits. Then there would be no need of contending for "woman's rights;" no need of "sorosis;" neither would there be wanting means to mitigate or entirely put an end to the "social evil," now so fearfully on the increase in our cities. Because our women, possessing as a general thing an innate individuality, wherein they differ from those of eastern and other nations, if they could be educated, and continued in possession of this advantage after passing from girlhood to womanhood, they would be no less a power in the land for good, as they ought to be, than man. But, instead of

this being the case, we behold many becoming the mere plaything, of man, catering only to his sensual desires, having no more ambition than to receive in turn from him, for the gratification of his lust, the wherewithal to clothe and adorn their frail frames; then languishing into sloth, indifference, and dependence, with all former innocence and personality obliterated and destroyed forever. Thus, instead of making themselves intellectually the equal of man, as it is undoubtedly in their power to do in many if not in all instances, as it is now and as has been illustrated by a few of the sex in all ages, without being allowed to vote, we soon behold them gradually dropping into the foibles and follies of the times: some immolating their health, others health and even virtue, upon the altar of deified fashion. Other causes, tending to such fearful consequences in a great measure, may be traced to the example unintentionally set by the affluent, which, the less fortunate endeavoring to imitate, will, in not a few instances, lead them to part—we record it in sorrow—with their chastity. To the former we would say, consider what a wonderful responsibility rests upon you, and—

“In thy more exalted state,
A just and equal temper show;
That all who see thee rich and great,
May deem thee worthy to be so.”

We have been unwittingly led into the above digression on account of the great interest manifested everywhere in relation to the moral bearing of the present mode of female dress, which it is hoped will prove to the reader a sufficient apology therefor

As stated at the beginning of this subject, the object will be to consider the advantages of different materials for the purposes of clothing, rather than any peculiar mode, we now return to the consideration of the same. In our climate and that of Europe, clothing is required principally for protecting the body against the sudden changes of temperature. Woolens of all kinds answer this purpose better than any other fabrics for spring, fall, and winter wear, on account of their being bad conductors of heat and powerful absorbers of the water evaporated from the surface of the body during perspiration. This evaporation is necessary in order to reduce the heat of the body generated by exercise or exertion of any kind; but if allowed to go on too rapidly, great chilliness, or even catarrh, pleurisy, pneumonia, or rheumatism, may be the result. Dry woolen clothing will prevent either of these conditions, by condensing the vapor from the surface. At the same time the woolens give out their latent heat, which makes them warm and genial after or during sweating. This vapor would pass through cotton or linen without condensation and evaporate upon the outside, thereby giving up at once the caloric contained therein, producing that well-known unpleasant sensation of chilliness upon the surface of the body. If ladies attending receptions during the social season, with their light and airy clothing, would bear these facts in mind, and provide themselves with suitable woolen coverings, to throw around them after whirling in the mazy dance, they would suffer less from colds and other disorders, so prevalent among them during these periods. For—

"When dressed for the evening, ladies, now a-days,
 Scarce an atom of dress on them leave;
 We would not blame them for what is an evening dress,
 But a dress that is suited for *Eve*."

For summer wear, white or light linen is preferable and more pleasant, because then the surrounding atmosphere is generally above the temperature of the body, and is reflected therefrom by the white fabric outside, whilst its texture allows of free egress of the heat generated by the body on the inside. The same will apply to cotton, silk, and other light fabrics.

EXERCISE.

"By toil the flaccid nerves
 Grow firm, and gain a more compacted tone;
 The greener juices are by toil subdued,
 Mellowed, and subtilized; the vapid old
 Expelled; and all the rancor of the blood.
 Begin with gentle toils, and as your nerves
 Grow firm, to hardier by just steps aspire.
 The prudent, even in every moderate walk,
 At first but saunter; and by slow degrees
 Increase their pace. This doctrine of the wise
 Well knows the master of the flying steed."

This is an important hygienic measure, no less on account of its effects upon the system generally, than those it has upon respiration, and the tone and development given to the muscles brought into play by it. The quantity of inspired air, as well as the expired carbonic acid, is increased to about double that given off by the body in a state of rest. To be beneficial and healthy, it is to be indulged in by some cautiously and with prudence, or it may prove

hurtful, as it immediately excites the heart's action considerably above normal, according to the kind or the violence with which it is carried on. If intemperately, the tender tissues of the lungs may be injured by their engorged state, resulting from the increased quantity of blood forced into them, or the valves of the heart itself may become thickened or otherwise affected. A deficiency of exercise, on the other hand, tends to weaken the heart's action, inducing general debility of the system at large, with an atrophied condition of the organs of circulation, and consequently a gradual waste of body, and consumption. An individual entering upon any new or unusual exercise should pay due attention to the pulse; if this rises to one hundred and twenty pulsations in a minute, the exertion must be considerably moderated and gradually terminated. After the exercise has ceased, the skin, if it has been exposed, or, if not, the body, ought to be properly protected, as has been already intimated, else the rapid evaporation therefrom will produce chilliness, or provoke a cold in the individual who has engaged in it and neglected this precaution. The nature of the exercise should be such as to call into play all or as many as possible of the muscles of the body. With this view, as coming within the means of every one, none are better than walking, say from three to six miles per day, or the various gymnastic institutions should be patronized by those who can afford it. The fashionable and, to some, fascinating game of croquet may be indulged in. Rolling over the floor, or gliding more smoothly over the ice upon skates, are all healthy and graceful exercises,

that may be frequently resorted to by nearly all ages of either sex. Children, as a general circumstance, require long intervals of repose between any regular exercise, as their muscles demand more rest for reparation, during which period they absorb and retain for some time so much water as to prevent any urine being secreted or voided for some hours after exertion. Very young children and infants are not to be overlooked in the matter of out-door exercise. For by it—

“They acquire a vigor and elastic spring
To which they were not born.”

During the fall and winter, whenever the weather is suitable, they should be taken out into the open air, for it is only at these periods of the year the doors and windows of houses are kept closed, to retain the heat generated by the fires. Children moving about continuously in this close atmosphere, rendered deleterious by the exhalations from their own and the bodies of other inmates, besides the unconsumed carbonic acid gas that escapes from the coal-stove or grate now so commonly used, can hardly pass through these seasons without being stricken with disease of some kind. When the little ones are to be taken out of the house, due regard should be shown for them in the matter of dress, by their being well protected from the cold in winter, and not too warmly bundled up at other seasons of the year, when there is no occasion for it. They ought not to be kept out long or until they become chilled, as the reaction on taking them into a warm room is apt to produce faintness, vomiting, or ca-

tarrh, and at night perhaps an attack of croup. These unhappy sequences may often be prevented by removing the soiled napkins, shoes, and stockings at once upon being taken into the house. Then place the feet of the child within your own hands, and allow the former to be gradually warmed by extracting heat from the hands, or they may be briskly rubbed until warm enough; if they are very cold, and present a purple appearance, the feet should be bathed in spirits of camphor, arnica, whiskey, or brandy, after which the child should be again properly dressed or put to bed. The child's nurse ought to be instructed to pay proper attention to her charge whilst out, and bring it into the house upon the least manifestation of discomfort on its part.

NURSERY.

The nursery for children should be well ventilated, and kept as near as can be at an equable temperature. If possible it should be located on that side of the house most exposed to the sun, that its light may penetrate into the room, imparting its invigorating rays and genial warmth to the inmates. The habit with some mothers, nurses, and others, of teasing children, or of learning them to revenge any real or imaginary wrong upon one another, or anything that may have apparently injured them, is altogether reprehensible, and should be avoided. Likewise ought to be discountenanced, in the presence of children, all marvelous tales, hobgoblin and ghost stories, which are calculated to excite their fears and work upon the imagination. No doubt

from the above cause has originated many cases of inflammation of the brain or its coverings, and early death, or, what may be considered almost as bad, if not worse than death, an extreme sensitiveness of the nervous system, by which the child may be thrown into spasms at the slightest noise, or be afraid to remain a moment in the dark without being close to or in the arms of some one with whom it may feel itself safe from harm. Indeed it is no exaggeration to say that it not only affects them thus whilst young, but in many instances clings to them until they may have grown up to womanhood or manhood, when, from a want of sufficient moral courage or self-confidence, they will prove themselves imbecile and unfitted to enter upon the realities of life, without becoming disheartened and discouraged at the first reverse that overtakes them. Thus the idea may be fixed in the mind that the actual duties of life are too onerous and arduous for them. And, brooding over this fancy, they become extremely sensitive, selfish, or melancholy and demented, and at length terminate what is to them a miserable existence in an insane asylum, or seek the desired isolation and repose in suicides' graves.

Therefore, all ye to whom is given the charge of raising children, ponder over the truths above set forth, and by all means in your power discourage, do away with, and denounce all idle, fearful, nonsensical tales. Let your children be early taught the duty of self-reliance; to be generous, compassionate, faithful, and religious. Fearful only to wrong one another, and their FATHER which is in HEAVEN and their SAVIOUR. With such principles early im-

pressed upon and instilled into their minds, they must necessarily grow up to be strong; mentally, morally, and physically well-fitted to serve in any sphere of life into which God and their capacity may lead them. For "they that wait upon the Lord shall renew their strength; they shall mount up with wings as eagles; they shall run, and not be weary; and they shall walk, and not faint."

FINIS.

GLOSSARY.

A

ABDOMEN—The belly.

ABDOMINAL—Relating to the belly.

ABDOMINAL RINGS—Openings in the lower portion of the belly under the skin, just above the goin, through which pass the spermatic cord in males and round ligaments of the womb in females.

ABLACTATION—Cessation of sucking.

ABNORMAL—Unnatural.

ABSORB—To suck up.

ABORTION—Untimely birth.

ABORTIVES—Medicines to induce abortion.

ACCELERATION—To hasten.

ACETABULUM—Literally vinegar-cup, the cup-like cavity of the hip-bone.

ACETATE—Acetic acid combined with a salt.

ACETIC ACID—Vinegar.

ACUTE—Active, severe.

ADOLESCENCE—To grow, period prior to full growth.

ADULT—Full growth; attained about the twenty-fifth year in males, twenty-first year in females.

ADVENTITIOUS—Accidental or false.

AFTER-BIRTH—Placenta secundines.

ALA—A wing.

ALBUMEN—As white of eggs and sap of plants.

ALKALINE—Opposed to acid.

ALOE, SOCOTRINE, } Purgative medicines, which act upon the
 } rectum. The dose is about eight to ten
ALOE, BARBADOES, } grains, in pill or powder.

ALTERATIVES—Medicines that gradually restore health.

- AMMONIA—Volatile salt, commonly known as hartshorn.
AMMONIAC—A gum, resin.
AMYGDALÆ—Almonds of the throat, the tonsils.
ANÆMIA—Poor blood.
ANATOMICAL—Belonging to anatomy.
ANATOMY—The science of the structure of animals.
ANGINOSE—Sore throat, suffocation.
ANODYNE—A medicine to relieve pain.
ANOREXIA—Want of appetite.
ANTISEPTICS—Disinfectants.
ANUS—Outlet of the bowels.
ANUS, IMPERFORATE—Closure of the anus.
APEX—Point, extremity.
APHTHÆ—To inflame, the thrush or sore mouth.
APOPLEXIA—Congestion of lungs or brain.
APPETITE—To desire or relish food.
AQUA—Water.
ARCANUM—Secret.
ARTERIES—Tubes through which the blood flows from the heart.
ARTICULATION—Joined together, a joint.
ASCITES—Dropsy of the abdomen.
ASSIMILATION—Converting food into nutriment.
ASTRINGENT—Medicines which contract tissue
ATONIC—Loss of tone or power.
ATTENUATED—Emaciated.
AUSCULTATION—To explore with the ear.
AXILLA—Arm-pit.
AXIS—Center of a revolving body.

B

- BISMUTH, SUB-CARBONATE—Astringent and anti-acid medicine.
BLADDER—Reservoir for the urine.
BLADDER, NECK OF—Orifice of the urethra.
BLADDER, FUNDUS OF—The body.
BOUGIE—Instrument for dilating.
BREGMA—To moisten.
BROMIDE OF POTASSIUM—Bromic acid and potash.
BRONCHIA—Air tubes of the lungs.
BRONCHITIS—Inflammation of the bronchia.

C

- CADUCOUS—To fall, temporary.
CALOMEL—The mild chloride of mercury.
CANINE TEETH—Commonly called eye and stomach-teeth.
CARUNCULA—A little piece of flesh.
CASEIN—Cheese, albumen of milk.
CATHETER—An instrument to draw the urine.
CAUL—The amnion, &c.
CAUTERIZE—To burn with caustic.
CERVIX—The neck.
CHALYBEATES—Preparations of iron.
CHANGE OF LIFE—Cessation of menses.
CHEST—The thorax.
CHRONIC—Long continued.
CITRINE OINTMENT—Nitrate of mercury ointment.
COAT—A covering.
COLON—The large intestine.
COLOSTRUM—First milk.
COMATOSE—Drowsiness, stupor.
CONGENITAL—From birth.
CONSUMPTION—A wasting disease.
CORPULENCY—Excessive increase of the body.
CŒSTIVENESS—Constipation, or bound in the bowels.
CREOSOTE—A liquid distilled from tar.
CRETA—Chalk.
CRITICAL—Crisis, period of change.
CROTON LINIMENT—Croton and olive oil.
CUPPING—Taking blood with cupping-glasses.
CUTICLE—Scarf-skin.
CYANOSIS—Blue skin.
CYST—A bladder.

D

- DEBILITY—Loss of strength.
DECIDUOUS—To fall off.
DEMENTIA—Feeble, or loss of intelligence.
DIAGNOSE—To determine the nature of a disease.
DIAPHORETICS—Medicines acting upon the skin.

DIAPHRAGM—Muscles separating the thoracic and abdominal cavities.

DIET—Proper kind of food.

DIGESTION—Change of food into chyme.

DILATATION—Opening, widening.

DISINFECTANT—That which purifies the air.

DIURETIC—Medicines acting upon kidneys.

DOVER'S POWDER—Ipecac., opium, and potash. Full dose for adult, ten grains, which is equivalent to one grain of opium and one of ipecac.

E

ELIXIR, CALISAYA—Preparation of cinchona bark.

ELIXIR PAREGORIC—A mild carminative and anodyne for children. Dose: three drops to a teaspoonful, according to age.

EMACIATION—Becoming thin, lean.

EMBRYO—To bud, applied to child in the womb until third month, when it is called the fœtus.

EMETIC—That which causes vomiting.

EMETIC, TARTAR—An emetic and sedative medicine.

EMPHYSEMA—Wind-dropsy, inflated with air.

EPIGASTRUM—Over the region of the stomach.

EPITHELIUM—The layer of epidermis covering the mucous membranes.

ERUCTION—Belching.

EXTRAVASATION—Out of the proper vessel.

F

FÆCES—Excrement.

FARINACEOUS—Containing farina

FECUNDATION—Impregnation, conception.

FILAMENT—A thread.

FIMBRIA—A fringe.

FORMULA—A form of prescription.

FOURCHETTE—A fork.

FRONTAL—Relating to the forehead.

FUNCTION—Office of an organ.

FUNIS—Navel cord.

G

- GENERATION—Reproduction.
GERM—Rudiment of life, a seed.
GERMINAL MEMBRANE—Covering of the ovum.
GESTATION—Period of pregnancy.
GLAND—A secretory body, as the liver, &c.
GLYCYRRHIZA—Licorice.

H

- HALLUCINATION—Erroneous imagination.
HARE-LIP—A division of the lip, malformation of the lip.
HERNIA—A protrusion of the intestine.
HORIZONTAL—Lying down, level.
HYGIENE—That branch of medicine devoted to the means of preserving health.
HYGIENIC—Relating to hygiene.
HYSTERIA—Hysterics.

I

- ICE-CAP—Bladder filled with ice for the head.
IDIOSYNCRASY—Individual peculiarities.
ILIA—The flanks.
ILIAC—Relating to the ilia.
IMBECILITY—Weakness of mind.
IMPACTED—Wedged in or locked.
IMPERFORATE—Closed.
INANITION—Not nourished.
INCISORS—The cutting-teeth.
INDEX FINGER—Forefinger.
INDIGENOUS—Native.
INDURATED—Hardened.
INGESTA—Indigestion.
INJECTION—To throw with a syringe liquids into the bowels or vagina.
INTESTINES—The bowels.
INVERSION—To turn inwards.
INVERT—Turn upside down.
IRRITATION—Excitement.
JALAP—A purgative medicine.

K

Koosso—A vermifuge medicine to expel worms.

L

LACTATION—The period of sucking.

LACTEAL—Belonging to the milk.

LAMINA—A plate.

LARYNX—Upper part of the wind-pipe.

LESION—A hurt.

LETHARGY—Forgetfulness.

LIGATE—To bind.

LINEA—A line.

LIQUOR SANGUINIS—Fluid portion of the blood.

LONGITUDINAL—Long, extending lengthwise.

LUNAR CAUSTIC—Nitrate of silver.

LYMPH—Liquid floating in the lymphatics.

LYMPHATICS—Minute tubes ramifying the whole body.

M

MALARIA—Marshy emanations.

MALFORMATION—Unnatural.

MAMMÆ—The breasts.

MAMMARY AESCESS—Gathering of the breast.

MAMMARY GLAND—Milk gland.

MANIA—Insanity.

MATURATION—Ripening.

MECONIUM—First discharge from the bowels of infants.

MEMBRANE—A tissue.

MEMBRANE, FALSE—Formed by coagulation of blood.

MEMBRANE, MUCOUS—Lining cavities exposed to air.

MEMBRANE, SEROUS—Lining cavities not exposed to air.

MEMBRANES, THE—Applied to those enveloping the fœtus.

MENINGES—Membranes of the brain and spinal cord.

MENSTRUUM—A solvent.

MESENTERY—Tissue uniting the bowels.

MIASMA—Malaria.

MICTURITION—The act of passing water.

MONAD—A simple particle, atom, or unit.

MORPHIA, BIMECONITE OF—Preparation same strength of laudanum.

MUCUS—Mucilaginous substances.

MURIATES—Muriatic acid combined with bases, as iron, &c.

N

NATES—The buttock.

NAUSEA—Disposition to vomit.

NOSTRUM—Literally "our own," applied to quack remedies.

O

OBESITY—Corpulency.

OBLIQUUS—Oblique, slanting.

OCCIPUT—Back part of the head.

CEDEMA—A swelling.

OPIUM—Juice of the poppy.

OS INNOMINATA—Bones without a name.

P

PALLIATIVES—Medicines to relieve temporarily.

PANADA—Bread-pap.

PAPILLA—A teat or pimple.

PERINEUM—Space between anus and vagina.

PLETHORIC—Full habit.

PLEURA—Lining of the chest and covering of the lungs.

PLEURISY, PLEURITIS—Inflammation of the pleura.

PNEUMONIA—Inflammation of substance of the lungs.

PROGNOSIS—To foretell.

PUDENDUM—External organs of generation.

PULSE—From pulso, "I beat;" the beating of the arteries; that at the wrist (the radial) is chosen for convenience; it is considered in relation to its quickness, hardness, strength, the interval between the beats, and the number of beats in a given time.

PURGATIVE—A purging medicine.

QUOD DEUS BENE VERTAT—May God direct it to a good end.

R

RAMUS—A branch.

RECTUM—Straight; the fundament or terminus of the bowels.

REMITTENT—To subside, without intermission.

RESPIRATION—Breathing.

ROTATION—Motion, revolving.

RUGA—A wrinkle.

S

SACRAL—Belonging to the sacrum.

SALINE—The nature of a salt.

SCROFULA, KING'S EVIL—Swelling of the glands, a bad condition of the system generally.

SCROTUM—A bag, that containing the testicles in the male.

SOLUTION—To dissolve a substance in any menstruum.

SECRETE—To separate.

SOPORIFIC—Medicines to produce sleep.

SPERMATOOA—Animalculæ of the fecundating fluid.

SPHINCTER—Muscles surrounding outlets or openings in the body.

STAGE—Periods or degrees of disease.

STERNUM—Breast-bone.

STERTOR—Snoring.

STUPOR—Insensibility.

SUGAR OF MILK—A substance obtained from whey by evaporation. It possesses some of the properties of sugars generally.

SUPPURATION—Gathering, forming pus, commonly known as festering.

SYMPHYSIS—Union of bones, without apparent motion.

SYPHILIS—Venereal disease.

T

TÆNIA-TAPE—Tape-worm.

THORAX—The chest.

TISSUE—A web, the flesh.

TONICS—Medicines that give tone and strength.

TRACHEA—The wind-pipe.

TRANSVERSE—Crosswise.

TUBERCULAR—Relating to tubercles, consumption.

TUMOR—Enlargement.

TUBEROSITY—A protuberance.

TYMPANITIC—Drum-like, tense.

TYPHOID—Like typhus.

TYPHUS—Stupor, slow fever.

U

UMBILICUS—The navel.

UREA—A principle peculiar to urine.

URETHRA—Outlet of the bladder.

URINEMIA—Urea in the blood.

V

VAGINA—A sheath.

VEINS—Tubes that convey the blood back to the heart

VENÆ CAVÆ—Applied to the two largest veins in the body.

VENTRAL—Relating to the belly.

VERMIFUGE—Medicines to expel worms.

VERNIX CASEOSA—The white cheesy substance present upon infants at birth. It is apparently soluble in, and easily removed by, the application of lard.

VERTEBRA—One of the spinal bones.

VESICULAR—Little bladder.

VULVA—External organs of generation.

W

WEANING—Separation from the breast.

Z

ZINC, SULPHATE OF—White vitriol.

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